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Observations
ON
THE NATURE AND SYMPTOMS OF CARDIAC INFECTION IN CHILDHOOD.

BY

F. J. POYNTON, M.D., F.R.C.P.LOND.,

PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL; SENIOR PHYSICIAN TO OUT-PATIENTS, THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

I.—INTRODUCTORY.

THE study of cardiac infection in childhood has appealed to me as the best introduction to the problems of cardiac disease in man. It is, in my opinion, a drawback to our excellent manuals upon heart disease that they do not sufficiently throw into prominence this aspect, and lack that close analysis of the early stages of these infections which makes us realize their great significance and impresses upon us that rational treatment must lie in prevention. The result has been to lay overmuch emphasis upon mechanical problems and to place in the background the more important consideration of the behaviour of the heart in response to infection compared with the response of the other organs. In childhood we can study the commencement of a class of cardiac diseases which often leaves lifelong scars, and both histological and experimental investigations have made it possible to outline clearly the steps in its pathological progress.

From such an introduction as this the student can rapidly grasp the great principles involved, and thus more easily fit into their proper position the many difficult details of cardiac disorders in the adult. Some of these, no doubt, are not concerned with cardiac infection, but none the less they are seen more clearly when these processes are understood.

There are many kinds of cardiac infection, to mention only the rheumatic, tuberculous, septic, diphtheritic, and pneumococcal forms, but for my purpose none is so suitable as the rheumatic. It is in this country the commonest, it attacks all parts of the heart and produces every sort of cardiac disability. The fatality is sufficiently great to furnish accurate pathological knowledge of the injuries, and these have been confirmed by experiment. The student will accordingly start from a broad and solid basis of fact. From the outset two chief considerations will claim his attention: the cardio-vascular apparatus itself, the mechanism of which has been injured, and the correlation of the cardiac disorder with that produced in other organs by the same disease in its various stages.

In the first direction he will be continually acquiring special knowledge of the symptoms and signs of cardio-vascular injury; in the second he will be working on broader lines and studying the cardiac lesions as particular results of the general disease, and will consequently be led to inquire into the life-history of the infection as it concerns the entire system. Thus from the outset he will recognize that much heart disease is the result of the scars of healed infective processes.

During the years I have served as an out-patient physician at the Hospital for Sick Children I have accumulated a large number of clinical facts upon the early phases of cardiac infection, and have, I think, been able to keep them in their right perspective by a simultaneous experience of adolescents and adults in general hospitals. The point of view in these two institutions is not quite the same. In the hospital for adults it is heart disease which is predominant, if only for the valuable teaching it provides. In the children's hospital it is the particular infection that is dominant. Each aspect has its value.

The following examples will indicate the direction in which I am aiming. In this country there is, I suppose, no more serious affection of the heart than mitral stenosis. It is frequent in occurrence, incurable, and a common cause of death under 45 years. The suffering entailed is often extreme, and many married women of the poorer classes are rendered helpless invalids at an age when young families are dependent upon their activities. In a general hospital we usually see these cases with the symptoms well established, and they are looked upon as cases of primary heart disease—that is, as cases of mitral stenosis. In a children's hospital we see the early stages and attendant circumstances, and we trace their evolution. Again, we may see a case of valvular disease which at the moment is of no particular interest, but if we have followed the history we may have noticed that the lesion followed upon clear evidence of a sore throat. We are thus led to recognize the relation of angina faucium and rheumatic heart disease, and get a glimpse of one of the most valuable lines for preventive treatment that modern medicine has established. Here I would emphasize the value of studying not only the cardiac signs but all the events that may coincide with a first attack of rheumatism in childhood. If we wish to prevent cardiac infection every detail concerning the lesions in other organs becomes important.

There is a warning concerned with nomenclature that should be given to a student who would follow along these lines. The disease is variously called rheumatic fever and acute rheumatism. Both these terms were in use before the disease in the young was understood, and they are sanctioned by long usage. Nevertheless they are misleading. If we consider for a moment tuberculosis in the child, we recognize an acute miliary form, rapidly fatal, acute bronchopneumonic forms, and a large group in which the invasion is so gradual that none can name the exact date of onset. So, too, with rheumatism, there are acute fulminating cases, acute cardiac cases in which the heart takes the position of the lungs in tuberculosis, and cases very gradual in onset.

The terminology of tuberculous fever, or acute tuberculosis, does not cover that disease in the young, and the same is true for rheumatism. This imperfection, however, is not academic in its drawbacks, for the faulty nomenclature leads to surprise being expressed by parent and student that a case of obvious rheumatic disease has never been acutely ill. Moreover, a false notion exists in the lay mind that rheumatic fever is dangerous and that insidious rheumatism is not. One of the difficulties in the prevention of rheumatic heart disease is the unobtrusive onset of some of these illnesses. We can best combat the difficulty by a careful study of the manifestations of rheumatism uninfluenced by the nomenclature.

MANIFESTATIONS OF RHEUMATISM.

There are many admirable articles upon the manifestations of rheumatism in childhood which must be looked upon as introductory chapters to the study of cardiac infection, and some of these manifestations I take here to illustrate what I mean by the correlation of cardiac symptoms with those in other organs. There is, however, one generalization to be made first: *The severity of the cardiac affections is dependent upon the virulence of the infection.* Severe valvular disease may certainly result from repeated attacks of rheumatism, but the deadly menace to the heart lies in the grave toxaemic forms which from the first irreparably damage the neuromuscular tissues. In such cases this element of virulence is of more importance than the physical signs of cardiac disease for arriving at the immediate prognosis.

A. *The Throat and Nose.*

In 1900 Dr. Paine and I isolated from the tonsils of a patient suffering from acute rheumatism and tonsillitis a strepto-diplococcus identical in characters with one we had already isolated from the blood, valves, pericardium, joints, and nodules of cases of rheumatism. This produced carditis, arthritis, and the various other experimental results we have fully described elsewhere. Some years later we continued these investigations in cases of recurrent rheumatism with diseased tonsils, and confirmed the accuracy of our observations.

The conclusion from these results is obvious—*the infection may gain access to the body by way of the tonsils.* These investigations were novel, but the inference had been suggested and commented upon by clinicians for over a century. As for the clinical evidence, I am convinced it is final. Over a period of nearly twenty years I have assured myself of its truth, and I can recall cases in childhood in which acute rheumatism has followed tonsillitis as clearly as it has followed an experimental intravenous injection in an animal.

Difficulties have been raised, but the chief of them appear to me dependent upon a too rigid interpretation of the processes of disease in man. It has been pointed out

that a sore throat is frequently absent, and this is certainly true. Does any one, however, suppose or claim that no other site of entrance is possible? Again, is it necessary that the throat should be painful? It would be clearly unscientific to claim the tonsils as the site of entrance when nothing points in this direction, but, on the other hand, it would be equally so to deny that structures of which we can only see the surface may not be diseased in their depths, or that a virulent infection may start from a minute and apparently painless local lesion.

When the treatment of infective cardiac disease is discussed, the operative indications in rheumatic tonsillitis require consideration; but here I would point out that with this question also an over-rigid view of human disease is liable to appear. No operation will altogether prevent a recurrence of active rheumatism, and we cannot expect that it would, seeing that we do not know all the various paths of infection or the possibilities of the lighting up of foci of previous infection within the body.

One lesson in the history of heart disease, however, can be safely learnt. *An acute tonsillitis in a child should always call for careful examination of the heart.* A second, equally important, is that recurrent sore throats in childhood are not only in themselves painful and disabling, but are a menace to the heart, and must be a consideration in advising upon operative measures.

In accord with our experience of other infections, there is no condition of the tonsils that can be claimed as specifically rheumatic. In various diseases we recognize clinical forms of sore throat which represent a classical type, but we also recognize that there are variants. In rheumatism we see the painful red glazed tonsils and fauces, and where the process has sunk deeper small follicular deposits; but we also find membranous tonsillitis, sometimes not very unlike the diphtheritic; and again, deep collections of unhealthy secretion in large tonsils which, except for their size, may show little change. It is reasonable to believe that the micrococci are present in the healthy and that they acquire their special virulence under circumstances of lowered resistance, particularly in those who inherit that peculiar constitutional tendency which we call the rheumatic.

These unhealthy conditions of the throat are, we know, often coupled with adenoid vegetations, and it is very probable that in these vegetations the micrococci may retain their virulence. Chronic nasal affections, too, I think, require more observations than are at present at our disposal. The nasal mucous membrane may well be another site of infection, as also the internal ear, and I am convinced there is a rheumatic otitis of acute nature. Enlargement of the cervical glands is common, as would be expected since tonsillar disease is so frequent in the rheumatic, and this must be looked upon as evidence of the entrance of infection into the system. I am a little surprised that more attention has not been directed to the glandular enlargement in rheumatic children, for, though it is naturally to be expected, it accords so closely with the history of other tonsillar infections that its occurrence strengthens our confidence in the infective nature of the disease.

B. *Arthritis.*

Arthritis in childhood, with which I associate muscular pains, is, as we know, very frequent in rheumatism, and on this account a very valuable danger signal. Although arthritis at this age is not usually severe, the value of it as a symptom is very great, particularly if it is realized that the pain may be considerable owing to implication of surrounding tendon sheaths, with no detectable changes in the joint affected. The rule has been long established that *obscure pain in the joints and muscles in childhood should call for a careful examination of the heart*, and it needs no labouring.

C. *Chorea.*

Chorea and the allied nervous symptoms deserve the closest attention. I believe there is much to be learnt from their study that has bearing upon some of the most difficult problems in cardiac disease. Later, when touching upon mitral stenosis, I shall illustrate the close association that exists between chronic and repeated chorea and the evolution of this lesion, but now I only wish to draw attention to the great influence that the rheumatic infection exerts upon the nervous tissues. Chorea is the classical and striking manifestation, but there are other remarkable results. The older clinicians realized that the rheumatic child was the nervous child of a family, and we may look upon this peculiarity from two aspects: The child of rheumatic parentage may have, as one evidence of the constitutional weakness, an unstable nervous system, or, on the other hand, a child who has been attacked by this infection may as a result become unduly nervous. Of this latter occurrence I have no doubt, and I have seen repeated examples in children who have never developed a frank chorea. Such children become prone to migrainous headaches, night terrors, emotional attacks, and general nervousness. They may develop a condition which in adults we might term neurasthenia. Again, striking evidence upon this point is sometimes given by rheumatic adults both male and female. They may volunteer the statement that they know they are highly nervous and have noticed this to increase so greatly when they have signs of active rheumatism that they are then almost unable to control themselves. Such patients possess often enough great will power, and are perfectly aware of their weakness, and their statements convince me of the powerful effect of the rheumatic poison upon the higher nerve centres, and I think it worthy of the careful attention of neurologists. It is well known that every case of chorea requires careful examination of the heart; but the point which I am anxious to insist upon here is that the peculiar effect of rheumatism upon the nervous system tends to produce disturbances of the heart, such as tachycardia, precordial sensations, irregularity of action, and even anginal symptoms. I believe that above all affections rheumatism is liable in the adult, under suitable circumstances, to produce a condition of the heart akin to that met with so often in the soldier, and that we must keep before us this difficult problem of the factor of nervous instability in the study of organic heart disease. We shall then realize how very difficult it is to distinguish between functional and organic disturbances of this organ, and how inadequate any set tests for the mechanical power of the heart must be in dealing with the practical issue. The problem involved is not only whether the heart is mechanically sound, but whether the individual possesses a heart which will answer to physical and nervous strain by a healthy and confident response.

I have met with rheumatic cases in which the heart has seemed to physical examination but little if at all damaged, and yet such is the neuro-muscular response to sudden physical strain or excitement that they are totally incapacitated for any prolonged exertion, speedily collapsing with palpitation, general prostration, and even syncope.

Rheumatism probably gives us the best clue to unravelling functional nervous disturbances of the heart that we at present possess.

D. *Cutaneous Manifestations.*

The various rashes and cutaneous manifestations of rheumatism are, I think, of particular interest in that they give us a hint as to the nature of the rheumatic poisons of which we have no accurate knowledge. The urticarial, erythematous, and purpuric lesions suggest an altered state of the blood producing undue fragility or permeability of the capillaries. So narrow is the margin that a hot compress placed over an area of erythema may cause it to become purpuric, and an erythema on the upper limbs may be followed by a purpura on the lower. I have seen an erythema, purpura, and early psoriasis in the same patient—and an erythematous patch with a nodule in its centre. The latter occurrence is of interest, for the nodule is a local infection.

Akin are Filatow's or Osler's spots—on the pads of the fingers or toes, on the dorsum of the hand, or even in the palms and on the wrists. These may be the first definite signs in childhood of a progressive or malignant endocarditis. They are very likely to be overlooked, for they are minute and often so little painful as to escape the child's attention.

In this section I am also inclined to place epistaxis, so frequent in the rheumatic child, as Dr. Sidney Phillips has observed. The attacks may be frequent and severe, but personally I have not met with a dangerous case. It may occur during an acute attack, or be a first warning, or be an isolated event between attacks of general rheumatism.

E. *Abdominal Symptoms.*

The occurrence of abdominal symptoms in the rheumatic is an obscure subject, but one of considerable interest in heart disease, for we recognize how gastric and other abdominal disturbances influence the action of the heart when it is organically diseased or functionally defective. Reliable evidence upon these symptoms is scanty, for in rheumatism, except in very unusual cases, they do not cause a fatal result. The exceptions are rare examples of acute gastric dilatation and appendicitis. Occasionally extreme pain and distension may be complained of in the line of the colon, producing great distress and embarrassing the damaged heart, and troublesome colitis may occur. Apart, however, from these, we repeatedly meet in rheumatic children with what are called "bilious attacks." The appetite fails, the sclerotics become icteric, and the tongue coated; the motions are pale and there may be vomiting, fever, and severe headache. Such attacks may usher in an exacerbation of rheumatism. Experiment has thrown a little light upon the subject. The diplococcus has been demonstrated in large numbers in the bile of infected animals. Recently, in an unpublished case of fatal chorea in a woman, Dr. Paine isolated the diplococcus from the gall bladder and cerebral tissues. Jaundice, too, is not very uncommon in rheumatic children, and it may complicate the course of a severe chorea.

The bearing of these few observations at present is, I admit, problematical, but we are well aware of the close connexion between hepatic disturbances and the nervous system, and it is quite possible that they take some part in the unstable nervous state of the rheumatic, and that the metabolism of the liver may have a closer relation to the cerebral processes than is realized.

My chief intention here, however, is to draw attention to the occurrence of this triad of symptoms in the rheumatic: *Instability of the nervous system, abdominal disturbances, and faulty action of the heart.* The student of heart disease will repeatedly meet with this combination of symptoms, and he will find it often enough difficult to decide which system is primarily at fault. Such cases are sometimes conveniently termed "neurasthenia," but we should try to search behind the mystery of this somewhat all-embracing term.

F. *General Wasting.*

This also is a symptom needing close attention. It is not very unusual for a child to be brought to hospital for wasting coupled with a history of indefinite illness, and to find the explanation an insidious rheumatism. Again, during a severe attack general wasting may proceed rapidly. Lastly, this symptom in a child with severe organic heart disease is of great significance, for it may mark the beginning of the last stage of the illness, and indicates failure of the circulation to maintain nutrition even when the child is carefully guarded.

The converse to this is also of value; it is a sign of good augury when a child with rheumatic heart disease begins to gain in weight although the physical signs in the heart may convey no such favourable impression.

A student intent on the study of the heart alone, is in danger of losing sight of such homely evidence as this unless he remembers that the heart cannot be considered apart from the frame to which it is supplying blood.

G. *Anaemia.*

Anaemia in rheumatism affords valuable evidence of the virulence of an attack. There are few more striking clinical signs than the ghastly greenish pallor of a deadly carditis.

I have always attached much importance to this sign both in children and young adults, and my experience has led me to believe that neglect of the treatment of anaemia in young rheumatic adults favours the development of the malignant form of endocarditis which is most liable to make its appearance in early adult life.

H. *Fever.*

Fever in rheumatism is generally agreed upon as a sign of activity of the process, but there are cases of great obscurity in which fever persists for weeks and yet no definite explanation is forthcoming. When there is active carditis we naturally suppose that there is progress in the lesions, but there are examples of mysterious fever which seem to leave no indication of their meaning. I mention them here because they greatly perplex us in our arrangements for convalescence, and remind us that in forming a judgement upon this point we must fall back upon the general condition of the patient and not be swayed overmuch by one symptom.

I. *Rheumatic Subcutaneous Nodules.*

The last manifestation I shall consider here are the rheumatic subcutaneous nodules. Dr. Cheadle long ago properly insisted upon their grave significance as associated with severe cardiac lesions. There are exceptions—rare cases in which nodules are almost the predominant manifestations, and the heart little if at all affected—but these only serve to accentuate the value of the general rule. It would seem that the occurrence of nodules points to lowered power on the part of the cells to destroy the infective agent, and that the friction of exposed areas and of the movements of tendons suffices to enable the micrococci to overcome this lessened resistance and produce local lesions. It must be remembered that these lesions at one time in their life-history contain the infective agents, and also that the same changes may occur in the subcutaneous tissues without producing an actual nodule.

PATHOLOGICAL CHANGES IN RHEUMATISM.

One of the most useful things to be learnt from the rheumatic nodule is the light it throws upon the pathological changes in rheumatism which must now have some consideration. This is not the place for a minute pathological account, but there are some fundamental facts which are a necessity in the study of infective heart disease.

First of all, the human frame resists the infection with great energy; the tissue cells rapidly destroy great numbers of the micrococci. This can be observed most clearly in the tissues from experiment, but when once these have been studied it becomes equally apparent in the human tissues. When the micrococci escape from the blood vessels into connective tissue spaces, the leucocytes and tissue cells rapidly destroy them; the lesions in rheumatism are fundamentally local lesions, a general septicaemia being unusual. The nodule is of such value because it gives a picture of these local changes. The blood vessels are dilated, the connective tissue becomes swollen, leucocytes invade the damaged area in the centre of which are patches of necrosis. A fortunate section of an early nodule cutting through the margin of a necrotic area will show the micrococci. The lesions are so small and necrotic tissue is so sparse that healing often occurs without leaving any trace of the original swelling behind.

If we study the pericardium, the valves, or the joints, we find the same events happening and differing only in their anatomical surroundings, the extent of the areas of infection, and function of the damaged tissues. Wherever there is necrosis there must be scar formation, and wherever there is great virulence there must be great hyperaemia and rupture of fragile vessels with consequent multiple minute haemorrhages.

Where the tissues involved are secretory in function the exudations that result differ with the virulence—they are sometimes haemorrhagic, sometimes clear, and sometimes sero-fibrinous. Much difficulty has arisen over the question of pus formation, but this is in reality mostly artificial. The essential question is this: Are we to use pus as a specific term? For example, is the thick yellow fluid from a staphylococcal abscess to be called pus, and no other similar fluid to bear that name? If so, rheumatism is certainly non-purulent. No one, however, uses the term in this restricted sense, but, on the contrary, we speak of pneumococcal pus, of the thin pus of streptococcal infections, and so on. If we use the term thus, as a description of a phase in an infective process, then there is a rheumatic pus, and it is found in advanced cases of rheumatic pericarditis. It is not in nature identical with the fluid of a staphylococcal abscess, for the chemical changes are doubtless different, but it is probably akin to the pus in some cases of pneumococcal pericarditis.

SUMMARY.

Some further pathological details will be given in later articles under the individual cardiac lesions, but here the

essential points in this cardiac infection may be summarized as follows:

1. There is a great resistance by the tissues to the infection.
2. The general toxaemia varies greatly in different cases.
3. The tendency is to multiple focal lesions.
4. Hyperaemia with increased permeability or fragility of the blood capillaries is frequent.
5. There are swelling of connective tissue, cell proliferation, leucocytic infiltration, and necrosis.
6. Scar formation and adhesion follow necrosis.
7. Exudations vary in character with the virulence and nature of the surface involved.

THE USE OF A DIVIDED MATTRESS AND PELVIC ELEVATOR.

By Sir WILLIAM MACEWEN, C.B., M.D.,
GLASGOW.

When we have so many seriously injured men as at present the following adjuncts to our surgical technique may be useful.

There are two simple contrivances which, on suitable occasions, if used together, or separately, will contribute to the comfort of the patients, to the ease of the nurse,

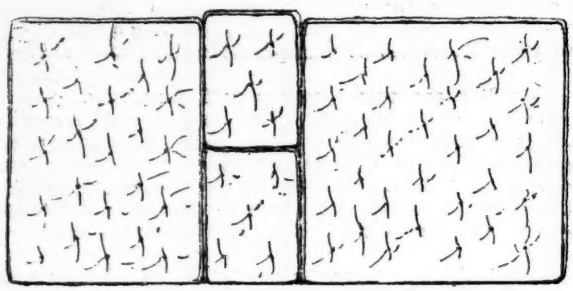

Fig. 1.—Mattress in four pieces.

and will facilitate the work of the surgeon. These are—(1) a mattress divided into four pieces, and (2) a pelvic elevator. They are of use for fractures of the lower limbs, excision of joints, in paraplegias, sacral bedsores, dressing of pelvic wounds, etc.

When fractures are plated the same necessity for rigid fixation of the parts above and below the fracture does not exist; but even here the comfort of the patient will be increased by the use of a divided mattress and elevator.

In cases of fracture of the femur where it is of importance to maintain the fractured bones in rigid apposition, elevation of the patient for cleansing of the back and pelvis and the introduction of the bedpan are seriously disturbing. This is especially so when treating patients placed on ordinary mattresses, as the pelvis has to be raised and lowered on each occasion, and consequently the fractured fragments, when not plated, are apt to be displaced.

Divided Mattress.

For the purpose of keeping the pelvis on the same level with the femur a mattress is arranged divided into four pieces, an upper portion measuring 28 in. in length, a lower piece 34 in. in length, and two centre pieces, each measuring 12 in. in length, with a handle at each end (Fig. 1). (The two latter portions may be made in one piece, but this makes a long part, the breadth of the bed, not so easily handled). The length of top and bottom pieces may vary according to the height of the patient to be provided for.

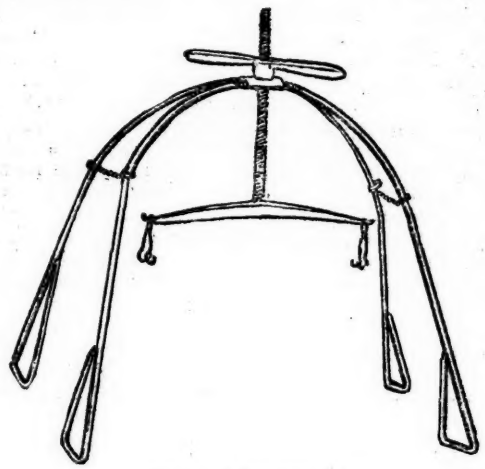

Fig. 2.—Pelvic elevator.

Quotation from Ward Sister.

"When preparing this mattress for a patient each of the two larger mattress pieces is covered with a separate sheet, and the small portions placed in position uncovered between the two larger ones. The binder, mackintosh, and draw sheet are then placed across the bed to cover the small portions of mattress, and the ends of the sheet, etc., are tucked in on either side underneath the mattress as in an ordinary bed. When the bedpan is about to be introduced these two centre pieces are withdrawn, one from either side, and the under sheet adjusted."

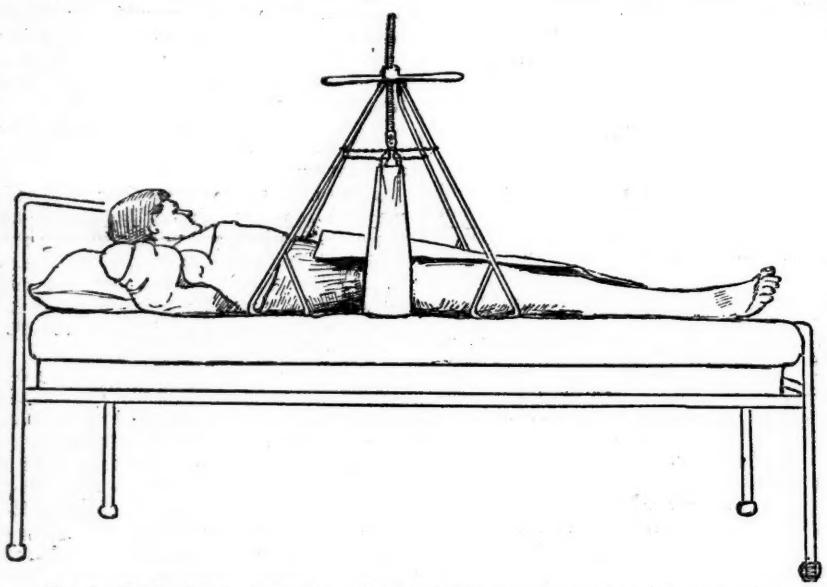

Fig. 3.—Pelvic elevator in position—the weight being now on pelvic band—preparatory to withdrawal of centre pieces of mattress.

The pelvis, however, is apt to sink somewhat when the supporting middle pieces are withdrawn, though a skilful nurse can prevent this. In order to prevent this sinking a pelvic elevator is used.

The Pelvic Elevator.

The pelvic elevator consists of two strong wire uprights, which form a frame joined at the top by a piece of metal through which a screw passes supporting a cross piece, to which is attached a pelvic band (see Fig. 2).

When in use this elevator is put across the patient at the level of the pelvis, and, when it is used along with a cut mattress, one limb of the elevator rests on the lower segment of the mattress and the other limb on the upper. When not in use the pelvic band is detached and may be left *in situ*, lying flat under the patient.

When required, the pelvic band is attached to the cross bar of the elevator and the screw revolved until the desired

elevation of the pelvis is attained (Fig. 3). The weight of the pelvis is transferred to the pelvic band sufficiently to enable the middle portions of the mattress to be withdrawn without disturbing the pelvis. The sacrum may then be washed or the bedpan introduced without movement of the pelvis, and, consequently, without disturbing its relations with the femur. The elevator is so arranged that it may be wrought by the nurse or by the patient. The latter may assist himself while lying supine by elevating or lowering his pelvis, and so adjust the level to suit his convenience (Fig. 4).

Do not overdo the elevation of the pelvis, as an over-enthusiastic nurse might do; just elevate sufficiently to suit.

Such pelvic elevators may be used for many other purposes: For elevating the pelvis during the application of bandages or surgical dressings; washing and cleansing the patient; for the prevention of bedsores and for the dressing of them when they have occurred; for fracture dislocation of spine, paraplegia, and for bedridden persons who have few attendants, especially as many of the patients could thereby assist themselves by working the elevator to any desired extent. The pain or aching in the back so often complained of during the first days after operation, when patients are compelled to lie supine, can be greatly relieved by the pelvic elevator, which can be adjusted and readjusted, raised and lowered as often as required.

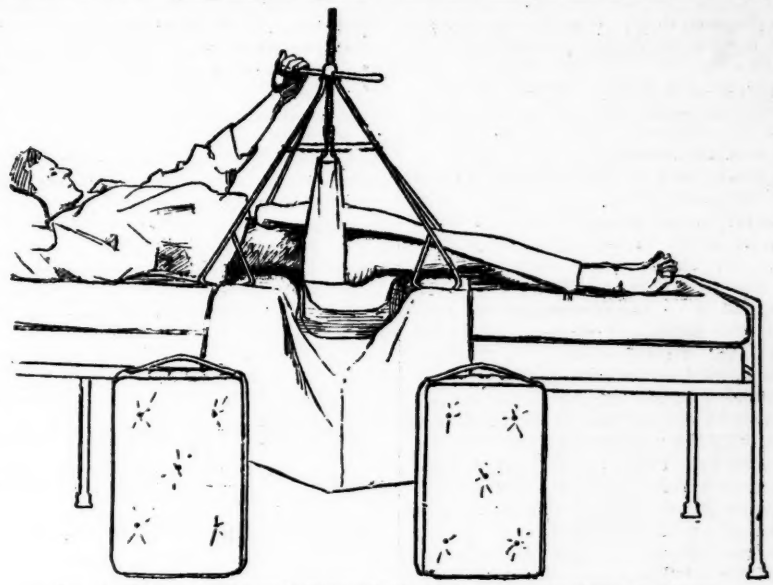

FIG. 4.—Pelvic elevator sustaining weight of patient; centre piece of mattress withdrawn.

It may also be employed as an elevator for any other part of the body, and, with the addition of extra slings, may act as a support for an arm or a leg. When not in use it may be employed as a cage for keeping the weight of the bedclothes from a fractured limb, or as a fracture cradle.

The divided mattress, as illustrated, was introduced by me in the early seventies for patients who had femoral osteotomies performed on them on both limbs at one time, and in whom it was necessary to maintain the limbs rigidly in proper relation with the pelvis until ossification was completed. Since then it has been in use for patients with fractures of the femur, and for other injuries and ailments. It has been found of much convenience to the nurse and comfort to the patient.

The pelvic elevator in one form or other has been used by me for a considerable period, but the newer, lighter forms here depicted have been introduced of recent years. One of these, made of wood in forty-eight hours by the mechanic at Mount Stuart Hospital, Bute, has served its purpose very well.

Desiring, however, to get an efficient and cheap mechanism, stout iron rod was used, the superstructure being made of a single rod bent as illustrated, with a joining plate at the top, where the arches meet, through which the elevating screw goes.

Mr. Hilliard carried out the instruction, and, as shown in Fig. 2, he has introduced a modification which occurred to him, and which allows of the collapse of the mechanism for carriage to a distance.

Further Observations ON THE HAEMAGGLUTININ REACTION,

WITH SPECIAL REFERENCE TO THE OPERATION OF BLOOD TRANSFUSION AND TO NEPHRITIS.

BY

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IN the BRITISH MEDICAL JOURNAL of December 8th, 1917, I drew attention to the use of the haemagglutinin reaction as a method of testing the toxicity of different antiseptic reagents to human blood serum.

A further study of the haemagglutinin content of the blood serum in a series of 250 patients when tested with my own washed red corpuscles and those of the sheep has shown:

I.

That different human serums vary very much in their haemagglutinin content when tested with the same standard red cells. This grading of haemagglutinative capacity is independent of the specific power of different serums to agglutinate the red cells of different individuals according as they fall in one or other of the established groups. Individuals whose serums belong to the same agglutinative group differ in haemagglutinative capacity. Some have a very low and some a high capacity for agglutinating the same washed red cells. The result of the serum test has been recorded on the same plan in all cases; thus +++ indicates a high, ++ a moderate, and + a slight degree of haemagglutinin effect, while − indicates the absence of any reaction. In all cases the macroscopic method was used (see BRITISH MEDICAL JOURNAL, December 8th, 1917).

This means, of course, that incompatibility of donorship in the operation of blood transfusion is also a graded character, and it is therefore desirable, when testing incompatibility, to express not only the presence but the degree of agglutinative reaction. I have also previously shown that 1 part of non-agglutinative to 4 parts of agglutinative serum is sufficient to neutralize haemagglutination *in vitro*, but before applying this fact to the human subject it is desirable to ascertain by experiment on animals whether the same holds good in the living body. But this grading of agglutinative capacity is also important from the biological point of view.

It is supposed that the familial incidence of a haemagglutinative capacity of blood serum in parents and children follows Mendelian laws. It is, however, evident that a character—for example, haemagglutinin content—which varies from zero to a high positivity is much more difficult to handle as a method of testing inheritance than a sharply defined character of more constant value.

II.

But not only does the specific haemagglutinative capacity vary in degree in different serums, it also varies from time to time in the serum of the same patient. This fact is even more important than the first. I mentioned in my earlier communication that there were reasons for thinking that a non-agglutinative serum may become agglutinative in a patient who has passed successfully through a systemic infection. As the result of a study of 140 patients whose serums have been tested against my own red cells before

and after recovery from wound infection, I have records of 13 cases in which, on a subsequent test, some change was detected in the haemagglutinin content of the blood serum. In all cases the change was either from a negative to a positive reaction, or from a low to a high degree of haemagglutinin content. This generally coincided with a healthier condition of the wounds and with improvement in the general health of the patients.

Nephritis.

I have also tested the haemagglutinative capacity of the blood serum against my own red cells and those of the sheep in 50 cases of nephritis. Of these a second examination has been made, after an interval, in 25 cases, and a change in haemagglutinative capacity was observed in 15. In 7 cases a negative was converted into a positive reaction, and in 8 from a lower to a higher haemagglutinin content as far as my own corpuscles were concerned. With the sheep's corpuscles 5 cases showed a change from − to +, and one from a lower to a higher degree of agglutinative capacity. In three cases only was the change in the other direction. In the first of these a ++ was converted into a − reaction with my corpuscles, the action with the sheep's corpuscles remaining the same—namely, negative. In the second the reaction with my corpuscles remained constant, namely, ++, but dropped from a positive to a negative reaction with sheep's cells. In the third case the human cell reaction fell from ++ to +, but with the sheep's cells the reaction rose from + to ++. The two blood examinations were made in nearly all cases at about a month's interval, and most of the patients were improving generally, with a diminution in the amount of albumin in the urine.

The interesting problem arises in these albuminuric cases whether any leakage of haemagglutinins goes on from the kidney along with the leakage of serum-albumin and globulin.

A somewhat extensive examination of the action of these albumin-containing urines on washed red cells failed to show any distinct evidence of haemagglutinative effect. Certain changes, however, occur in the red cells which I regard as initial stages in agglutination, but the reaction does not become complete owing possibly to physical or biochemical factors in the urine. A control experiment in which a known volume of agglutinating serum was diluted with urine in different proportions showed that distinct evidence of agglutination could be obtained in serums diluted up to 1 part in 10 with urine, even after standing for twelve hours. Different samples of healthy urine also vary in the degree to which they destroy the agglutinative capacity of a given serum. This variation in the urine of different individuals to degrade the blood serum is undergoing further investigation, and may possibly provide a test of urinary toxicity.

Patients suffering from albuminuria consequent on nephritis show, on the whole, a lower haemagglutinin content of blood serum than is found in a corresponding group of partly healthy persons. A series of fifty cases of soldiers suffering from nephritis and a series of fifty male patients whose blood was examined for the Wassermann reaction, in many negatively, gave the following results. The cases are arranged in series showing the haemagglutinative strength:

	+++	++	+	−	Total.
Nephritis cases ...	3	16	20	11	50
Wassermann cases...	13	12	22	3	50

If this reduced haemagglutinin content in nephritis cases is considered in conjunction with the rise in haemagglutinin content which takes place as the albuminuria diminishes and the patients recover, we are led to the conclusion that a leakage not only of serum-albumin and globulin but also of haemagglutinin does take place from the kidneys in nephritis. This is important, because if the blood serum is drained of haemagglutinin it may also be drained of other substances of the antibody group, and this loss may be associated with the lessened resistance to infection which is known to exist in these patients.

Conclusion.

In a considerable number of cases under conditions which require further analysis, but which seem to be associated with recovery from albuminuria in the nephritis cases, and successful resistance to general infection in the wound cases, a definite alteration has been found to occur in the blood serum, for the most part in the direction of an increased haemagglutinin content. The bearing of this fact on the problem of blood transfusion now becomes apparent. If the blood serum of a recipient may be at one time compatible with the red cells of a given donor, and at another time may agglutinate those cells, the donor's serum may also, as the result of recovery from infection or other illness, change in the same way.

Cases have been recorded by Major Robertson, Major Lee, and others, in which transfusion of blood from the same donor to the same recipient had no harmful effects on one occasion but was followed by death on a second. I venture to suggest that changes in the haemagglutinin, and probably in the haemolysin, content of the blood serum of the recipient or donor or both occurred in the interval between the two transfusions, which were responsible for the unfortunate result.

GENERAL ANALGESIA BY ORAL ADMINISTRATION.*

BY

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AND

CAPTAIN HOWARD T. KARSNER, M.R.C., U.S. ARMY.

THIS report is in the nature of a preliminary communication based on animal experiments and a sufficient number of clinical cases to support the conclusions of the animal work. It will be seen that general analgesia in which there is loss of sensation, with or without loss of consciousness, can be established for otherwise painful dressings and for short operations. The desirability of such a procedure becomes apparent immediately on entering a military hospital, and it has also a definite place in civil surgery.

Many war wounds are accompanied by fractures of bones, and the importance of keeping such patients quiet is universally recognized. If the dressing of such a wound is accompanied by severe pain, it is customary at this base to produce nitrous oxide-oxygen or light ether anaesthesia for at least the first few dressings, necessitating in most cases, because of limitation of apparatus, removal of the patient to the operating room. This usually means pain and the danger of misplacing the bone fragments before and after dressings, as well as loss of time to surgeons, nurses, and orderlies. General analgesia, produced simply and quietly without taking the patient from his bed, is the logical solution of this difficulty, and the technique evolved as the result of this study makes it possible to administer the analgesic by mouth in perfect safety. It is, of course, applicable to practically all forms of painful dressings, and is being developed to embrace short surgical operations, such as resection of a rib, removal of foreign bodies, revision of wounds. In such operations, however, it may be necessary to supplement the analgesia with novocain for the skin incisions, a hypodermic injection of morphine, or even by light inhalation anaesthesia.

Local conditions made it seem advisable to select rabbits as the animals for the preliminary work. The animals were tied to a board and the various substances given by stomach tube, after which the animals were immediately released and placed under observation.

Quinine and Urea Hydrochloride (Nikalgin):

Weight of Animal.	Amount.	Result.
2200 gm.	4 c.cm.	No systemic effect.
2105 ,,	8 c.cm.	
2250 ,,	16 c.cm.	
1795 ,,	30 c.cm.	Unable to stand after 10 minutes and died in 8 to 17 hours.
2215 ,,	60 c.cm.	

* Aided by grants from the American Red Cross.

Trional (dissolves in alcohol, 1 grain to 1.5 c.cm.):

Weight of Animal.	Amount.	Result.
2230 gm. ...	1 grain ...	Reflexes active.
2470 ,, ...	3 grains ...	Reflexes abolished in 1 hour; still on feet.
2175 ,, ...	6 grains ...	Reflexes abolished in 45 minutes, remaining so for 5½ hours; full recovery in 8 hours.
2460 ,, ...	9 c.cm. alcohol (control)	Reflexes partly abolished.

Morphine Tartrate (in water):

1810 gm. ...	½ grain	... No appreciable effect.
2560 ,, ...	2 grains	
2000 ,, ...	3 ,,	
2050 ,, ...	4 ,,	

Paraldehyde:

1710 gm. ...	2 c.cm. ...	...	Dropped in 15 minutes, slept 4 hours; not analgesic.
2220 ,, ...	4 c.cm. ...	...	Dropped in 15 minutes; analgesic 6 hours; complete recovery.
	6 c.cm. ...	...	Died in 15 hours.

Ether in Olive Oil, 50 per cent.:

2430 gm. ...	5 c.cm. ...	...	Reflexes only partially inhibited, never off feet.
2170 ,, ...	15 c.cm. ...	...	Reflexes partially inhibited.
2420 ,, ...	30 c.cm. ...	...	Reflexes completely abolished; apparently full recovery. On repeating dose next day, animal died in 30 minutes. Necropsy showed dilated stomach, with congestion, erosion, and submucous petechiae.
2060 gm. ...	20 c.cm. ...	...	Reflexes abolished in 6 minutes; apparently complete recovery in 1 hour 16 minutes. Killed after 24 hours, and necropsy showed same findings as in preceding animal.
2095 gm. ...	25 c.cm. ...	...	Reflexes abolished in 5 minutes; apparently complete recovery in two hours. Killed after 24 hours, with same result as in preceding animal.
—	30 c.cm. olive oil without ether		No effect. Killed after 24 hours, and showed same condition in stomach as preceding animals.

Ether in Olive Oil, 25 per cent.:

Animal.	Amount.		Result.
No. 1	30 c.cm. ...	...	Down in 12 minutes; reflexes not abolished.
No. 2	20 c.cm. ...	...	Inco-ordinate.
No. 3	10 c.cm. ...	...	No apparent effect.

All three animals were killed after twenty-four hours; stomach not dilated, fundus much congested and covered with much adherent mucus.

Paraldehyde plus 25 per cent. Ether in Olive Oil:

Weight of Animal.	Amount.	Result.
2100 gm. ...	1 c.cm. paraldehyde	No effect.
1880 ,, ...	10 c.cm. ether in olive oil	Down in 5 minutes; reflexes partially inhibited; practically restored in 10 minutes. Recovery in 25 minutes.
2170 ,, ...	Combination of above	Down in 5 minutes. Reflexes practically abolished in 10 minutes. Recovery in 30 minutes.
1950 ,, ...	Paraldehyde 2 c.cm. and 25% ether in olive oil 20 c.cm.	Down in 5 minutes; slept for nearly 2 hours.
2060 ,, ...	25% ether in olive oil 20 c.cm.	Down in 5 minutes; slept for 1 hour.

Other Combinations:

Weight of Animal.	Amount.		Result.
2000 gm. ...	Morphine tartrate	1 grain	All inco-ordinate, but no other effect.
	Ether	2.5 c.cm.	
	Albolene	7.5 c.cm.	
1965 gm. ...	Morphine tartrate	1 grain	
	Paraldehyde ...	1 c.cm.	
	Albolene	2 c.cm.	
2110 gm. ...	Paraldehyde ...	1 c.cm.	
	Ether	3.75 c.cm.	
	Albolene	11.25 c.cm.	

These experiments were not conducted as experiments on the detailed physiology of analgesia, but simply for the purpose of demonstrating that analgesia can be produced by oral administration of proper agents. As will be seen, various combinations of drugs were not especially successful, and in rabbits the best results were obtained by the use of ether in oil. It was found, however, that this mixture produced acute gastritis in the animals, but further investigation showed that olive oil alone produced quite as severe a gastritis as when combined with ether. Knowing that olive oil is practically non-irritant to the human stomach, it was considered safe to proceed with the investigation on man. It was thought, however, that some mineral oils might be even less irritant in man, and accordingly the menstruum was changed to either liquid paraffin (albolene) or Russian mineral oil. The fact that there are said to be ether drinkers in Ireland and France who apparently suffer no more than alcoholics, made it seem additionally safe to try the mixture of the two for clinical work. Additional support was drawn from the fact that in many hospitals ether is being applied as a local dressing without deleterious results. Finally, a 65 per cent. solution of ether in oil has been used in many thousands of cases of oil ether colonic anaesthesia without any sign of local irritation to rectum or colon, as has been proven by proctologic examination, as well as by the fact that no case of dysentery or bloody diarrhoea has been observed.

Clinical Data.

The following combinations have been tried clinically:

I.	Ether Liquid paraffin		āā	℥j iv
	Aq. menth. pip.			♏ v
II.	Paraldehyde			℥j to iij
	50 per cent. ether in albolene			q.s. ad ℥j
	Aq. menth. pip.			♏ v
III.	Ether			℥j iijss
	Albolene			℥j iv
	Aq. menth. pip.			♏ v

The mixtures containing paraldehyde were disagreeable to the taste and smell, the ether oil very much less so, but the difficulty was soon overcome by following a suggestion by Major W. E. Lower. One ounce of port wine is placed in a glass and the analgesic in another glass. The patient takes a mouthful of wine, holds it for about thirty seconds, rinsing the mouth so as to get the aroma in the upper air passages and the taste well established, and then swallows the wine. The ether mixture is then taken and is followed *immediately* by the remainder of the wine. Several wines and liqueurs were tried but port wine was found to be the most satisfactory. One of us (J. T. G.) and several other physicians have taken this "Lower sandwich," and have found it not disagreeable and to produce analgesia. As will be seen from the following notes, numerous patients have been given it with excellent results. Only one patient has been nauseated, a man who was violently opposed to taking the wine. As opposed to that case it was given to another man, who had repeated attacks of vomiting, immediately after an attack. His dressing was done without pain, and his vomiting ceased permanently. All the cases have been able to take food and water shortly afterward, and even in patients much exhausted by infection there have been no deleterious after-effects. It was soon found that the paraldehyde served no useful purpose, and most of the dressings have been done with Formula I. While it is well not to give the analgesic immediately after a meal, no especial preparation of the stomach is necessary.

Under the general direction of Major W. E. Lower, the following cases were dressed in No. — (Lakeside, U.S.A.) General Hospital, American and British Expeditionary Forces, by Lieutenants B. I. Harrison and W. R. Barney. All the dressings were done without removing the patient from the ward.

CASE I.

Soldier, aged 35. Gunshot wound of right thigh, and infected compound comminuted fracture of femur. Previous dressings had been very painful, and the splint could not be changed without general inhalation anaesthesia. Given: Paraldehyde ℥j, ether ℥j iij, liquid paraffin q.s. ad ℥j j). In fifteen minutes fell into a light sleep. The wound was dressed, splint removed, through-and-through wound irrigated with ether, gauze drain inserted down to femur, and Thomas splint applied with extension. The patient talked during the dressing, felt practically no pain, and suffered no nausea or other ill after-effects. The dressing was repeated in a similar manner every other day for four dressings, and in none of them was there pain or any alteration of pulse or respiration.

CASE II.

Soldier, aged 28. Gunshot wound of left thigh, with compound comminuted fracture of femur. He was given same mixture as Case I, and fell asleep after twelve minutes. The Thomas splint was removed and replaced, gauze packing removed, wound irrigated with ether, and another gauze pack reinserted. The patient groaned when the pack was reinserted, but after regaining complete consciousness said that he had felt no pain during the dressing. Three subsequent dressings were done on alternate days with no nausea or other after-effects, nor alteration of pulse or respiration. The patient complained of the taste of the mixture, but said it was far to be preferred to the extreme pain of the dressings.

CASE III.

Soldier, aged 23. Gunshot wound of left leg—compound comminuted fracture tibia and fibula; through-and-through infected wound. He was given the same mixture as Case I, fell asleep after fifteen minutes and slept for thirty minutes, during which the dressings were done. Thomas splint repadded, packing removed and reinserted; ether irrigation. Two dressings were done without ill after-effects.

CASE IV.

Soldier, aged 39. Gunshot wound of left thigh, through-and-through, with compound comminuted fracture of head of femur. All previous dressings extremely painful. Given paraldehyde ℥ij, ether, albolene, āā ℥ij. Wound cleansed, packing removed and reinserted. The patient groaned at one time, but had no later recollection of having had pain. The pulse increased from 108 to 110 and respirations from 26 to 28. No nausea. Three subsequent dressings on alternate days were equally painless and without ill after-effect.

CASE V.

Soldier, aged 23. Gunshot wound of right leg, infected; compound comminuted fracture of tibia. Dressings very painful. He was given same mixture as Case I; dressing done with much less pain than before; the pulse rose from 100 to 116, and respiration from 24 to 26. A few days later the dose was repeated, and the patient slept through the dressing. No ill after-effects.

CASE VI.

Soldier, aged 27. Gunshot wound of thigh; streptococcus infection. No fracture. Given morphine tartrate gr. ¼, ether ℥ij, albolene ℥iij, paraldehyde ℥ij. Multiple superficial incisions were made for drainage with very slight pain, probably because of dressing following too soon after administration of mixture. The pulse rose from 110 to 120. The patient was vomiting before the mixture was given, but retained it and did not vomit afterwards.

Several other dressings are briefly summarized in the accompanying table.

Following the above experiments, one of us (J. T. G.) was ordered to a casualty clearing station. The following cases from the service of Captain D. C. Taylor, R.A.M.C., illustrate some of the possibilities of the method:

Two almost parallel cases of penetrating wounds of the knee occurred on November 15th. Case I was given the usual inhalation ether anaesthesia with the Shipway apparatus; Case II was given 1 oz. of 50 per cent. ether in liquid paraffin. Thirty minutes later a supplementary 2 drachms of chloroform were given by inhalation during the operation. The knee-joint was opened, pieces of comminuted patella removed, the joint irrigated with saline and closed. Both cases rested quietly for one hour after operation. Case I then complained, and required a hypodermic injection of morphine for the control of restlessness and pain. About the same time Case II awakened, drank some milk, and fell asleep again. Both patients slept until breakfast time. Case I drank some tea, but refused other food. Case II had tea, porridge, and bread-and-butter. Neither vomited afterwards, and both were evacuated to a base hospital in about four hours.

Two other cases of Captain Taylor's were given each a double dose of the mixture (2 oz. 50 per cent. ether in liquid paraffin). Each required only a few additional drops of inhalation anaesthesia. The resultant analgesia after operation was a little more prolonged than with inhalation anaesthesia. One of these patients was ready for operation in ninety seconds, and required 1 drachm of chloroform, given drop by drop, to "carry on" an operation lasting thirty minutes.

The substitution of chloroform for paraldehyde has been found to make even a more satisfactory mixture than the preceding. The following formula has been used in approximately thirty cases:

Chloroform	...	...	...	... ℥ss to j
Ether Liquid paraffin	...	...	...	āā ℥iijss

It is not recommended at the present time to exceed this. It is our opinion that the toxic effect of this small amount of chloroform can be disregarded in military surgery.

Discussion.

The physiology of "general analgesia" by oral administration has not been subjected to an exhaustive investigation, but certain important facts should be borne in mind by those who contemplate using the method outlined. The oil and ether mix perfectly, and do not separate into layers. Baskerville has shown the rate of evaporation from minute to minute to be constant, so as to form a straight oblique line when plotted out. This holds true with different percentages of ether in the oil, in all cases assuming a constant temperature and exposed surface. It is therefore impossible for the patient to get an overdose at one time and an insufficient amount at another time. The total amount is not absorbed at one time; if it were, the administration of 2 ounces of 50 per cent. ether in oil would produce complete anaesthesia, as there would be liberated 1 ounce of ether. Only a light analgesia is obtained which, for operative procedures, must usually be supplemented in some way. Naturally, the surface for evaporation is greater in the stomach than is the case in the colonic method, and the absorption of ether more rapid. The total amount that may be given with safety by this method has not yet been determined. It is considered advisable for the present to supplement the method either by local anaesthesia or the administration of small amounts of anaesthetic by inhalation. But it is important to remember that the patient is as safe by this method as if the ether were in a container outside the body. All anaesthetics are analgesics, and before the danger zone is reached the patient must become anaesthetized; hence the patient in the analgesic stage is separated from the danger zone by the period of anaesthesia. We consider analgesia by this method as safer than any method of anaesthesia. If the anaesthetist carries his patient to the "blear-eyed" snoring stage, he defeats the object for which this special method was devised, the object being to take advantage of the analgesic stage of any and all anaesthetics used. If adopted it would release from the routine of administration of anaesthetics a certain number of physicians who now, in military hospitals, devote their entire time to that work.

CONCLUSIONS.

It is felt that in so far as one can do so in a preliminary communication of this sort the following conclusions are justified:

1. General analgesia is safer than general anaesthesia.
2. Fifty per cent. ether in liquid paraffin or other bland oil is probably the safest general analgesic, has apparently no deleterious effect upon the stomach, and is not followed by the nausea and vomiting that frequently accompany inhalation anaesthesia. Its effect may be enhanced by the addition of a small amount of chloroform (℥ss to j). It may be given without unpleasant taste when "sandwiched" between mouthfuls of port wine.
3. The method is especially indicated during the dressing of painful wounds without taking the patient from his bed

Nature of Dressing.	Administration.	Time of Dressing.	Result.	Pulse.	Respiration.	Pupils.	After-effects.
				B. A.	B. A.		
Deep wounds of both legs; deep drains	2.32 p.m.	2.50 p.m.	Good	84 ... 84	Normal	No effect	None.
Large excised painful back wound	2.32 p.m.	2.48	No pain	92 ... 112	,,	,,	Nauseated and vomited.
Stump, adherent dressings (three times)	3.03	3.30		120 ... 100	32 ... 20	,,	None.
T.-and-T. wound leg, with drain	10.00	10.20	Good	No change	No change	,,	None.
Abscess leg, multiple incisions	10.00	10.20	Good	,,	,,	,,	Patient cried out but remained flaccid. Had little pain.
T.-and-T. drain leg	11.00	11.15	Poor	,,	,,	,,	Only half dose given. Patient jumped and had pain.
Stump dressing	11.15	11.30	Fair	90 ... 96	,,	,,	Patient cried out, but had less pain than when done before.
Drains, foot	℥ss*						

* Had no effect whatever. B. = Before; A. = After.

or ward, and, when supplemented, can be employed for surgical operations.

Note.—Our thanks are due to the medical director and members of the staff of No. — (Lakeside, U.S.A.) General Hospital, who have co-operated in this work. Major Alexander Lambert, Medical Director of the American Red Cross in France, on whose personal staff one of us (J. T. G.) had the pleasure of serving, has in many ways stimulated the working on this problem, and we take pleasure in expressing our warm appreciation of his interest and help.

THE EFFECT OF A DEEP HELD INSPIRATION ON THE MURMUR OF SLIGHT AORTIC REGURGITATION IN YOUNG SUBJECTS.

By W. GORDON, M.A., M.D.Cantab., F.R.C.P.Lond.,
Physician to the Royal Devon and Exeter Hospital; Medical Officer in Charge No. 1 Section Exeter War Hospitals.

I wish to draw attention to what I believe to be an undescribed clinical phenomenon—namely, the marked diminution or complete disappearance of the diastolic murmur of aortic regurgitation (in young subjects with only slight regurgitation) when a deep breath is taken and held.

The well recognized disappearance of a systolic murmur at or near the heart's apex under similar conditions has often been regarded as evidence in favour of such a murmur being exocardial—"cardio-pulmonary" as it has been called—rather than endocardial. Certainly some murmurs, reasonably diagnosed as "cardio-pulmonary," because most audible over areas in which lung tissue overlaps the heart, varying obviously in intensity with the phases of respiration, ceasing in recumbency, not following the usual rules of "conduction" of mitral murmurs, although heard at or near the heart's apex, do disappear when a deep breath is taken and held. But recently I have been led to wonder whether other murmurs, due to real mitral lesions, may not also disappear in similar fashion. Of such I cannot now speak with any confidence, but it is at least interesting to discover that an actual organic murmur like that of aortic regurgitation may also lessen or vanish during deep sustained inspiration. The three following cases have all been seen, and my conclusions verified, by valued colleagues, so that the truth of my observations does not rest on my own unsupported statements.

Case I.

Pte. G., aged 19, had a well-marked aortic regurgitant murmur whose area of audibility is indicated approximately in Fig. 1. There was no doubt about this murmur; pulmonary regurgitation is an excessively rare condition, and, in my experience (limited to cases of malignant endocarditis), has a murmur well heard over the upper left front of the chest, where this was not heard. The lesion was clearly slight, for the radial pulse was not "water-hammer," and there was no visible pulsation up to the ears in the neck. The heart's apex beat was in the fifth space, a little outside the left mammary line, when the patient was upright, and it was rather diffuse. The limits of the cardiac dullness were:

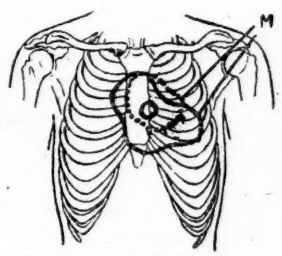

Fig. 1.—M, Approximate area of audibility of murmur—straight line, standing; dotted line, recumbent. O, Position of stethoscope during observations.

	Standing.	*Recumbent.*
Right edge:	$\frac{7}{8}$ in. to R. of midline ...	$\frac{3}{8}$ in. to R. of midline.
Left edge:	$4\frac{3}{8}$ in. to L. of midline ...	$4\frac{1}{8}$ in. to L. of midline.

There was no other murmur in any position. Curiously, the weather seemed to make a difference in the effects of inspiration, as I note below. On December 30th, during very cold weather, I noticed that the murmur was almost obliterated when the patient took and held a very deep breath, whether examined in the erect or recumbent position. On expiration the murmur returned. On December 31st, the weather being warm and mild, the deep held breath entirely obliterated the murmur. On January 1st, a warm day, the murmur at the sternal junction of the fourth left rib cartilage was entirely lost on taking and holding a deep breath; in recumbency a sharp reduplicated second sound remained. On January 9th, a warm day, the murmur was quite lost in the erect position, but not quite lost in the recumbent position, when the deep breath was taken and held.

Case II.

Driver W., aged 26, admitted August 19th, 1917, with slight aortic regurgitation, and slight double mitral murmur. Fig. 2 shows approximately the area of audibility of the aortic murmur. There was no doubt of the nature of the murmur, there being no murmur heard over or to the left of the pulmonary artery. The lesion was slight, judging by the almost complete absence of pulsation in the neck and the character of the radial pulse.

The diastolic murmur quite disappeared on taking and holding a very deep breath in the erect position, and nearly disappeared in the recumbent position.

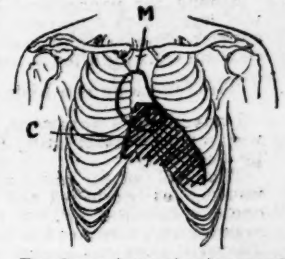

Fig. 2.—M, Approximate area of audibility of murmur, standing. C, Cardiac dullness, standing. O, Position of stethoscope during observations.

Case III.

Pte. R., aged 20, admitted November 18th, 1917. I found presystolic and systolic mitral and a soft diastolic aortic murmur. The pulse was not water-hammer, and there was no pulsation to the ear in the neck. On taking and holding a deep breath the diastolic murmur diminished distinctly, not immediately but by degrees, and, on releasing the breath, returned, but more quickly. I believe the same gradual disappearance of the murmur occurred in the other cases also. On November 25th, at the level of the fourth left costal cartilage (showery stormy day) the diastolic murmur quite disappeared on holding a deep breath. On December 1st it quite disappeared, equally in erect and recumbent positions. The condition is illustrated in Fig. 3.

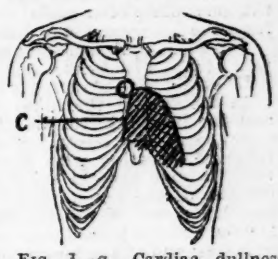

Fig. 3.—C, Cardiac dullness, standing. O, Position of stethoscope during observations.

Case I was seen by my colleagues, Dr. Clapp and Dr. Gates; Case II by Dr. Williamson and Dr. Gates; Case III by Dr. Williamson and Dr. Gates.

With regard to possible explanations, mere extra overlapping with lung could not have concealed the murmur, for the second sound, which preceded it, remained quite clear. My idea has been that perhaps the negative pressure set up in the thorax by the deep inspiration partly neutralized the elastic recoil of the aorta, thus lessening the force producing the regurgitation; and that, further, seeing that the effect developed not at once but gradually, the increased volume of the pulmonary capillaries in deep inspiration delayed the entry of blood into the left side of the heart, and produced a rather less full aorta. If these theories are correct they will help to explain the influence (if real) of weather, since on a cold day the aortic tension may perhaps be higher, owing to constriction of surface vessels, than on a warmer day.

It is, however, not to this attempt at explanation, but to the phenomenon itself, that I desire to draw attention.

THE CONSERVATIVE SURGERY OF THE HAND AS ILLUSTRATED BY A CASE OF TENDON GRAFTING.

By
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Consulting Surgeon, Southern Command.

It will readily be granted that although the work of the instrument maker in making artificial limbs is excellent, nothing yet invented can take the place of the human hand or even of a thumb and one or more fingers. There are at the present time many cases coming before surgeons doing military work in which the possibility of saving even one finger has to be seriously considered.

The purpose of this paper is to show the possibility of tendon grafting, which I think must have escaped the memory of orthopaedic surgeons, as I have not seen it made use of in any of the hospitals I have inspected

during the war. On May 24th, 1889, I read a paper on the subject before the Clinical Society of London and at the same time showed a successful case. In a leaderette in the British Medical Journal for June 1st, 1889, occurs the following statement:

> Among the papers read last Friday at the Clinical Society was one which chronicles another advance in conservative surgery, showing that another tissue of the body (tendon) can be successfully grafted as skin, bone, and nerve have been.

The following is a history of the case referred to:

I was asked in November, 1888, to see J. L., a weaver, aged 32, with a view to amputating his right arm for an injury caused by machinery.

The whole of the inner side of the forearm up to the elbow was hopelessly crushed and lacerated, exposing the ulna from one end to the other, but not opening the elbow-joint. The muscles were torn and the bone was rasped bare of periosteum. The wrist-joint was opened and the inner row of carpal bones was crushed. The three inner fingers were hopelessly smashed and the whole dorsum of the hand was swept clean of skin and tendons except the extensors of the thumb, which were bared but not otherwise damaged.

The index finger, excepting that its metacarpo-carpal joint was opened and that its extensor tendons had been completely torn away, was not further injured. After a little consideration, I decided to try to save the radius, the radial half of the carpus, and the thumb and index finger, and, in order to give the possibility of a useful index, to make an extensor indicis from the flexor tendon of the smashed middle finger.

The whole limb was scrubbed with soap and carbolized water, well rubbed with benzol and then thoroughly washed with 1 in 1,000 perchloride of mercury solution.

As the skin of the inner side of the forearm was destroyed and the bone injured, the ulna was excised to within a short distance of the elbow. The inner side of the carpus was removed, together with the three inner fingers, the skin of their palmar aspects being saved to lap over and cover the dorsum of the hand. The flexor tendon of the middle finger was taken out of the sheath, and four and a half inches of it detached and placed over the site of the extensor indicis, the proximal end of the tendon being stitched to the fleshy belly of the extensor communis digitorum, the distal end being fixed to the small portion of tendon left near its insertion into the phalanx. The skin was brought over to cover as nearly as possible. No drainage was employed. The wounds pursued an aseptic course, and there was no sloughing of tendon or skin. The patient returned home within a month, and was advised to try to use his finger and thumb.

He returned to his work in February, and when shown to the members of the Clinical Society he said he could perform his work as a weaver as well as ever. The movements of the fingers were very good, both in flexion and extension; the wrist-joint was movable, and both pronation and supination could be effected. During extension of the index finger the new tendon could be felt to move freely under the integument of the dorsum of the hand.

The man expressed himself as perfectly satisfied with his hand, which enabled him to earn his living as well as ever he could.

My apology for bringing to light this work after thirty years is that I venture to think an unsightly hand with a thumb and a finger is much better than any artificial limb, however perfect it may be.

ACUTE INTESTINAL OBSTRUCTION DUE TO JACKSON'S MEMBRANE.

BY

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SURGEON TO THE HOSPITAL FOR SICK CHILDREN, ASSISTANT SURGEON TO THE ROYAL VICTORIA INFIRMARY, NEWCASTLE-ON-TYNE.

It has been doubted by some whether the membrane covering the proximal portion of the ascending colon causes obstruction to the passage of the intestinal contents. It has been my belief that such was the case, and that to this might be ascribed the symptoms associated with this condition. In cases where the pericolitis (so called) manifests itself as a filmy membrane little or no obstruction can be demonstrated on examination of the colon. Where, however, the Jacksonian membrane is associated with fibrous bands crossing the colon, varying degrees of constriction may be noted. It is possible that this partial obstruction may also account for the dilatation and elongation of the caecum associated with such cases. The clinical symptoms would also suggest this, for the colicky pain, occasional vomiting, gurgling over the caecum, and tenderness on pressure, point to a temporary obstruction. This syndrome forms a common type of dyspepsia which can be recognized, but which too frequently, even now, is regarded as appendicitis and for which simple appendectomy is performed. That such a band can cause greatly exaggerated symptoms and result in acute intestinal obstruction the details of the following case show. I believe it an uncommon type of acute obstruction and so venture to place the case on record.

Mrs. S., aged 41, was admitted to the Royal Victoria Infirmary on January 18th, 1916, with symptoms of acute intestinal obstruction.

History.

For some years she had had attacks of abdominal pain and also marked constipation, the bowels only moving after an aperient. Three weeks before admission the pains had become worse, she vomited occasionally and had increased difficulty in getting the bowels open. For a week the pain had been severe, vomiting incessant and there had been no action of the bowels, while flatus had not been passed for three days. She had passed blood and slime by the rectum during the last three weeks.

On admission the temperature was 99.8°. The patient looked ill, and although fairly well nourished had a sallow complexion and had few teeth left. The abdomen was moderately distended, a distinct tumour being visible in the left iliac fossa. This tumour was composed of distended intestine; peristalsis could be seen and felt, while borborygmi could be heard during the contraction of the intestine, which caused the patient evident pain. Rectal examination was negative. A diagnosis was made of chronic intestinal obstruction become acute due probably to carcinoma of the pelvic colon.

First Operation.

On January 18th, 1916, the abdomen was opened in the left iliac fossa. Free fluid escaped on opening the peritoneum. A tense cyst was found occupying the left iliac fossa and extending to the bottom of the pelvis. The swelling had the appearance of a thin-walled ovarian cyst, but was tympanitic, and the taenia coli at once distinguished it as the caecum. No part of it could be drawn out of the wound, so it was punctured and a Paul's tube tied in. After evacuating part of its contents the caecum was sutured to the margin of the incision.

The patient improved greatly after the operation. The distension subsided and the bowels were moved normally on several occasions.

Second Operation.

On February 2nd, 1916, the abdomen was opened in the middle line below the umbilicus. The collapsed caecum was found crossing the abdomen from the right side to the caecostomy opening in the left iliac fossa. The lower part of the ascending colon was mobile and was covered by a thin membrane, at the upper border of which was a tight band passing from the parietal peritoneum to the inner border of the colon. The band was the thickness of a match stalk, it tightly puckered the ascending colon, and it was with difficulty that two fingers could be inserted beneath it. The band was removed and part of the membrane stripped away. The caecostomy opening was dissected free from the skin and closed, the caecum being returned to the abdomen, which was then closed. The appendix was normal and no trace of inflammatory adhesions were present.

After-History.

The patient was discharged from the hospital, well, on February 17th, 1916.

In November, 1916, the patient remained in good health, though she still had to take opening medicine.

On two occasions, in August and October, 1916, she had attacks of abdominal pain and vomiting, which necessitated her staying in bed for a few days. Should these attacks persist, further treatment of caecectomy or short-circuiting may become necessary.

REDUCTION *EN MASSE* OF A STRANGULATED DIRECT INGUINAL HERNIA.

BY

H. H. RAYNER, M.B., B.Ch.Vict., F.R.C.S.Eng.,

Captain R.A.M.C.T.,

HONORARY ASSISTANT SURGEON, MANCHESTER ROYAL INFIRMARY; VISITING SURGEON TO THE MANCHESTER CHILDREN'S HOSPITAL.

This case impressed me as a remarkable one in several respects, and I venture to think that it should not be allowed to drift into one's personal experience without a record.

Early in September, 1917, I was asked by Dr. Taggart, of Heaton Moor, Stockport, to see a lady who three days previously had begun suddenly to have pain in the abdomen and right groin; a few minutes afterwards she vomited several times, and noticed a lump in the right groin; she had never previously suffered from hernia.

Dr. Taggart saw her some two hours after the onset and found a tense rounded swelling in the right inguinal canal, about the size of a Tangerine orange, which did not yield an impulse on coughing; the swelling was clearly a strangulated hernia, and

with gentle manipulation it was easily reduced. Dr. Taggart was struck by the fact that the reduction was sudden and complete, giving him an impression like that of pushing a button through a buttonhole. The patient felt relieved for a time, but during the night and next day she was uncomfortable and had occasional attacks of slight colic, and vomited twice; the following day (the third) she still complained of occasional abdominal pains, and again vomited twice.

During the time between the reduction of the hernia and my seeing her the patient had not been given any opium or sedative because the pain was not severe; the bowels had not been moved, nor had she passed flatus, except in small amounts, despite enemata; very wisely, no purgative medicine had been permitted.

Her condition when I saw her on the fourth day of her illness was as follows: A well-developed woman, spinster, aged 45; her general condition and appearance was good. Temperature normal, pulse 92. Abdomen slightly distended, but showing no visible evidence of peristalsis during observation over several minutes. When handling the abdomen, splashing sounds could be heard, and I got the impression of feeling distended coils of intestine. The hernial orifices were normal, and a pelvic examination did not yield any evidence.

Operation.

Laparotomy, some hours later, through the right pararectal incision disclosed a loop of small intestine, 4 in. in length and about three feet above the ileo-caecal junction, tightly strangulated in a peritoneal pouch; the origin of the pouch was not at first clear, but it proved to be a direct inguinal sac displaced from the inguinal canal into the abdominal cavity. By dividing the orifice of the sac the loop of strangled intestine was easily released; at its point of entrance into the sac the loop showed a narrow annular strip of gangrene; it was simply covered over by an invaginating suture.

After suture of the peritoneum and muscles, the right inguinal canal was exposed, the sac pulled out into the canal and its relations as a direct (external direct) hernia clearly established. The sac was removed and the canal obliterated.

The patient left the nursing home within three weeks, and is now in good health and leading a normal life.

The noteworthy features of this case, apart from the reduction *en masse*, were:

1. The rarity of true direct inguinal hernia in the female.

2. The infrequency of strangulation of a direct inguinal hernia. Given strangulation of such a hernia, it is probable on anatomical grounds that reduction *en masse* is more likely to occur than in the case of the ordinary oblique type.

3. The subacute—in fact, quiet—character of the symptoms of obstruction which the patient presented considering the severity of the lesion; this I ascribed to the deliberate abstention from any aperient medicine and the restriction of her nourishment to the plainest fluids.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A HELPFUL DIAGNOSTIC SIGN IN RUPTURED DIGESTIVE ULCERS.

MR. WILLAN'S article in the JOURNAL of February 2nd is of great interest, and he is to be congratulated on his masterful description of the condition. The tight constricting band at the level of the lower ribs, the vertical obtuse angle, and the rigidity, present a complex diagnostic sign of great value. I believe it will be found of real use in some cases of subphrenic abscess, and will help in the diagnosis of this condition, which almost always is attended with difficulties.

A few weeks before Mr. Willan's description appeared, a patient admitted to the Cheltenham General Hospital presented this sign in a very marked degree. I will not enter into detail, but will be content to state that at the *post-mortem* examination, eleven days later, dense adhesions were present in the upper abdomen, with pus. An ulcer of the stomach had perforated, not in the usual acute way, and nature was attempting to shut off the diseased area. There is good reason to believe that adhesions were present before the last catastrophe, which did not present itself as an acute emergency.

I do not think the sign is present in a marked degree, if at all, in most cases of acute perforation, for the picture is so marked, when present, that it would have been described long ago.

It is one of those "pathognomonic" signs to which, nowadays, too little value is attached in the art of diagnosis. The present tendency to confine the diagnosis of abdominal conditions to whether or no the abdomen should be opened, and to complete the diagnosis afterwards, is woful. The great majority of abdominal conditions, acute and chronic, can be correctly diagnosed after an average experience by the use of common sense. The sign Mr. Willan has described will form part of the armament of the thoughtful diagnostician.

Cheltenham. S. M. HEBBLETHWAITE.

PREVENTION OF WATER-BORNE DISEASE IN THE TRENCHES.

A TYPE of water-borne diarrhoea observed in the winter in Belgian trenches was characterized by a tongue generally clean or moderately furred, and by marked temporary intractability to either sedatives or purgatives. Its course was rather under a week, as a rule, without fever, or with a temperature under 100°, without blood in the stools, but with very considerable pain and tenesmus. It could be clearly distinguished from the diarrhoeal form of trench fever by the tongue, which in that disease, as I have previously described, has a clean margin a quarter of an inch broad, and later by the lack of pain other than abdominal, and by the temperature chart. The incubation period was eight days. A prophecy made after some experience, to the effect that diarrhoea would break out at the end of the period as a result of a movement of the water-carts which was not communicated to the company officers, was accurate to the day, when some half-dozen cases appeared though the battalion had been free from this disease for a considerable period. The special methods of prophylaxis adopted may, in view of the ubiquity of water-borne diseases in all armies in greater or less degree, be of some interest.

1. The use of chlorinated water is all-essential. The statement that "the water is always boiled before use" is certainly not true as far as the preparation in the trenches of many a stew and many a dixie of tea is concerned.

2. The discipline of the company commander must be such that his orders that no water is to be taken except from the water-cart must be obeyed to the letter.

3. The water corporal must keep a record of every gallon supplied from the cart, and to whom it is supplied. It is best to take the name of each man and the platoon or section which he supplies, and, in the case of isolated strong points, the names of the men he supplies. The amount of water taken per company is compared with the trench strength of the company, and from this the number of pints per man is obtained. By obtaining the amount of water used by the cooks for stews, tea, etc., by observing the tempting streams crossing the routes of weary water carriers and the efficiency of water guards, if any, set over them, remarkably accurate deductions can be made as to the source of some or all of the water used. To obtain the records the water men must work on double shifts; water, at all times, if possible, should be available for the carriers as they arrive, or, at any rate, the sergeant-major warned daily as to the exact hours at which it is available. The labour of carrying adequate supplies up the trenches is very great, yet the importance of this is obvious.

It was observed in one instance that the surface water derived from an area within the trenches was apparently as pure as that derived from the tanks miles behind, requiring less than a single measure of chloride of lime. By bacteriological examination and by repeated daily examination with the Horrocks cabinet, it is possible under certain geological and other conditions that a very large amount of labour could be saved by a battalion in the line.

It is hoped that the simple methods here described might, under conditions where it is feasible to supply water at all in the trenches, go far practically to eradicate water-borne disease from an army fighting under modern conditions.

E. R. GRIEVESON, M.B., Ch.B.Edin.

THE United States War Department has decided to extend the system of psychological examinations to all enlisted men and newly commissioned officers. Specially equipped buildings will be provided in each army cantonment, and a school of military psychology established at Fort Oglethorpe, Georgia. The object of the tests is to help in weeding out the mentally incompetent and classifying men according to their mental capacity.

Reports of Societies.

AUTOLOGOUS GRAFTING IN MALIGNANT AND NON-MALIGNANT CONDITIONS.

In a paper read at the meeting of the Pathological Section of the Royal Society of Medicine on February 19th, when Dr. William Bulloch, F.R.S., President, was in the chair, Dr. J. A. Murray said that the results of the long series of auto-transplantations made by Haaland had been confirmed by Apolant, F. C. Wood, and himself, and it might safely be said that there was no type of undoubted malignant new growth in which auto-transplantation had not been successful; consequently, in all investigations necessitating the most rigorous demonstration of the malignant nature of new growths, auto-transplantation should be included in the tests applied. His paper dealt with an attempt to apply this test to the discrimination of an ill-defined group of new growths, namely, those of lymph nodes—lymphomata. A great variety of growth-like enlargements of lymph nodes occurred in the mouse, and might affect any one of the three component tissues to the exclusion of the others. For the present the new growths of the endothelium and of the reticulum had been ignored, and attention restricted to those arising from the lymphocytes and their mother cells in the germinal centres. In a tissue which subserved the cellular reactions of the body to extraneous agencies, a considerable degree of proliferation with increase in size might occur and present all the appearances of a progressive proliferation. The ease with which the lymphocytes left their usual channels and passed between the elements of the other tissues likewise rendered it impossible to distinguish a non-malignant sharply from a malignant invasion of the surroundings. The ubiquity of the cells throughout the body threw difficulties in the way of recognizing true metastasis formation. After repeated failures with a considerable number of lymphomata involving homologous inoculation into many hundreds of normal mice it was decided to relinquish this direct attack, and, in the first place, to attempt a segregation of those growths which could conform to the behaviour of malignant new growths of other tissues by growing progressively when inoculated into the spontaneously affected mouse itself. The astonishing result was that even when local recurrence and progressive involvement of other lymph nodes occurred the autologous grafts failed to grow. Usually the latter were found as opaque white necrotic nodules, smaller than the piece of tissue introduced. The cells might still be alive, and in a few cases mitoses were seen in them, in others the process of absorption was in progress or complete. This striking contrast between the failure of the graft and the natural progress of the disease distinguished the new formations dealt with from the ordinary carcinomata and sarcomata, and made it difficult to believe that they were true malignant new growths. They were apparently in the majority of cases reactive hyperplasias, most probably of toxic origin.

Professor S. G. Shattock observed that the difficulty of diagnosing a lympho-sarcomatous neoplasm from a lymphatic pseudoplasm was admittedly great; metastasis might, of course, arise in connexion with an infective process as well as in a sarcomatous. The test adopted by Dr. Murray was important, and the speaker saw no reason why it might not be applied in the human subject. For the excision of a small piece of a doubtful neoplasm, and its transplantation beneath, say, the loose skin of the dorsum of one of the fingers, would not be of serious moment; if the graft commenced to grow, it could be excised whilst still a local lesion. Theoretically it was not easy to understand why the transplantation of a lymphatic pseudoplasm should not, in Dr. Murray's experiments, have been followed by growth, seeing that any virus present in the tissue would necessarily have been transferred with the latter. In the human subject the evidence of autologous implantation might be naturally furnished by contact infection from one part of a serous cavity to another. The speaker had, for example, examined a diffuse thickening of the pericardium which histologically consisted simply of lymphatic tissue, but the opposite surface of the epicardium was the seat of a nummular and smaller nodular formations, highly suggestive of contact infection; there were metastatic formations in the kidneys. If this was accepted as an instance of implantation, it would at least prove the existence of lymphosarcoma in man, the occurrence of which might seem to hang in the balance in view of Dr. Murray's research. At the same meeting Dr. J. W. Cropper demonstrated a new counting chamber for the enumeration of protozoa and other organisms.

PRINCIPLES AND PRACTICE OF AMBULANCE WORK.

At a meeting of the Medical Society of London on February 25th, the President, Sir StClair Thomson, being in the chair, Sir James Cantlie, K.B.E., F.R.C.S., defined ambulance work as the moving of injured persons as speedily as possible, either from the battle front to the base, or from the mine, the factory, the harvest field, or the street to the hospital. In military ambulance work the injured man was moved by bearers trained by the medical department of the army in time of peace; in civil life the training of the bearers was left to members of the medical profession under the direction of civil ambulance bodies, which were under the direction of laymen. In military work the medical department sent out trained men under its control to bring in the wounded, but in civil life surgeons and physicians waited for the injured to be brought to the hospitals, but took no responsibility or control for how or in what state the injured were to be brought to them. Universities and medical schools took no part in the training or teaching of first-aid bearers or ambulance workers. First aid, as now known, was a special branch of the surgical art, and those of the profession who wished to take it up had to go beyond their schools to acquire the knowledge necessary in either the practice or the teaching of the art. As a profession we shut our eyes to the condition of the wounded in the streets and took no care, for instance, to prevent the simple fracture from becoming compound and septic. At the Medical Congress in London in 1881 a demonstration of ambulance work was watched by Professor Esmarch, and on his return he called the population of Kiel to the University to be taught first aid. Britain was the originator of civil ambulance work, and had taught the world its meaning and purpose, yet the medical profession, as a profession, had taken no part in it, nor was there a great ambulance school in which this important branch of the surgical (and to a great extent the medical) art was taught. We wanted the best appliances, the best teachers, and our foremost surgeons and physicians to take the matter in hand. We had got beyond the stage in which we regarded a little knowledge as a dangerous thing. First aid, as it ought to be taught, was not a little knowledge—it was a definite part of medicine and surgery, and was complete in its limitations and its purpose. It was as distinct a department of surgery as, say, ophthalmology or dentistry. The welfare, the very life, of the injured was being dealt with by a section of the community whose business was neither surgery nor medicine, yet they were expected to carry on this important work apart from the control of those to whom the nation looked for direction in all matters of the healing art. It was to remove this defect that he had for many years in his mind the formation of a central institute where this great branch of surgery should be suitably housed, where its teaching should assume a technical if not a scientific perfection. It was for this purpose that the College of Ambulance was founded in 1914. The college had fulfilled its purpose inasmuch as it provided a central institute where all branches were taught, where models of all organs were to be found, and where drill room, ward, and operating theatre, etc., were at hand. Various methods of lifting and carrying were then demonstrated. Mr. Hugh Lett agreed that the omission of first aid was a grave defect in nursing and medical training. Mr. Edmund A. Ridsdale said there was a marked distinction between the case of the wounded soldier in the field and the injured in civil life. In the one case casualties were expected in considerable numbers, and their position known, whereas in civil life it was impossible to know when or where an accident would occur. Mr. Frank Hastings, secretary of the British Red Cross Society, suggested that medical men should be

responsible for their own district, and that a system should be devised whereby the civil population should be trained to render first aid. Important work had been done by the Red Cross in improving the status of the trained nurse. Dr. HECTOR MUNRO and Dr. THOMAS LISTER also spoke. Sir JAMES CANTLIE, in his reply, said that the standardization of first aid work was very necessary, and should be carried out by the best talent in the medical profession. Specialists in the various branches of medicine and surgery should deal with the different sections of first aid and decide finally as to suitable methods.

RHINOPLASTY.

AT a meeting of the Section of Laryngology of the Royal Society of Medicine, on February 1st, 1918, the President, Dr. BROWN KELLY, being in the chair, Major H. D. GILLIES and Captain G. SECCOMBE HETT showed examples of rhinoplasty in various stages, and demonstrated photographs and models. The subject was reviewed from the repair of each portion of the nose that had been lost. Methods were classified and the difficulties and advantages of each put forward. Unsuccessful procedures were demonstrated, and the causes of failure pointed out. The advantages of utilizing the turbinate and septum in the formation of a lining membrane of the new nose and as supporting structures over which to mould the organ were shown and explained. The necessity for lining the new nose with either mucous membrane or skin was insisted on, and various new methods of epithelialization of frontal flaps and of the alae nasi in stenosis were illustrated with the aid of models and photographs.

Reviews.

HYGIENE AND PUBLIC HEALTH.

THE object of Dr. CHARLES PORTER'S *Elements of Hygiene and Public Health*[1] is to provide the student and practitioner of medicine with a textbook containing knowledge essential to the doctor in general practice. The book is well suited to the needs of the medical student, containing just what he ought to know, but for the doctor who has been a few years in practice the information on many subjects is inadequate. The arrangement of the contents is different from that found in most English works, which usually proceed in the first chapter to the consideration of air and water; but we believe the author is right in placing immediately after his introduction chapters on personal hygiene and public health and disease. The treatment of notifiable and non-notifiable diseases in different chapters is surely unscientific, involving as it does the separation of paratyphoid fever from typhoid fever and the inclusion of anthrax and glanders among non-notifiable diseases simply because they are not notifiable to a local although notifiable to a central authority. The work bears evidence of an intimate knowledge of the whole field of hygiene. The material is well put together, and the interest of the reader is sustained throughout. A feature of the volume is the large number of illustrations, many of which are new and excellent. Altogether the book forms an admirable introduction to the subject.

The appearance of a thirteenth edition of WHITELEGGE and NEWMAN'S well known book on *Hygiene and Public Health*[2] is a sufficient indication that it has supplied a professional and public demand. The revision of the new edition has been carried out by Sir George Newman alone, and he has introduced much new material in regard to subjects which have assumed an increased importance, partly on account of the advance of preventive medicine and partly on account of the war; we need only mention such questions as infant mortality, tuberculosis, venereal diseases, and military, naval, and industrial welfare activities. There is no doubt that this manual fulfils its object, which is stated to be "to summarize in a condensed and succinct form the most important applications of preventive medicine for the use of the medical student, the medical practitioner, and the health officer in every branch of the public service." The book is a mine of useful information, but is not easy reading, perhaps because it aims at too much. The accounts of the exact procedure employed in chemical, bacteriological, and immunological analyses might well be left to practical books treating of these subjects; the medical student is disposed to skip such matter, especially as it appears in small type, and the analyst will ask for more. In a subject of such wide range as hygiene it is difficult sometimes to decide what to include and what to omit. We find no mention of vitamines either in the chapter on food or in the section dealing with scurvy and beri-beri. Nor have we found any mention of Leiper's work on the life-history of the bilharzial worm, which has put out of date the suggestion that one stage of it is passed in the body of a crustacean. Greater stress might have been laid on the use of antitetanic serum as a prophylactic; the directions as regards intrathecal injection of the serum mentioned in the book are applicable to the treatment of actual cases of tetanus. Reference to *B. icteroides* in the etiology of yellow fever might well have been omitted, and in the section on typhus fever more room for modern investigations of its etiology and prophylaxis might have been found. The statement in the text that infection in typhus fever "is given off by the breath," and that "it is believed that the disease is largely spread by vermin, especially fleas and body lice," might make the student consider that the spread by body lice had no experimental or epidemiological evidence in its favour. Some good new illustrations have been added, but those depicting the meningococcus, the *Spirochaeta pallida* and the *Bacillus typhosus* are poor and uninstructive. These are minor defects, and it may be said that no book on the subject contains in the form of a handy manual such a wealth of accurate information on every branch of public health.

The sixth edition of PARKES and KENWOOD'S *Hygiene and Public Health*[3] will be found to take a fair perspective of the whole field of sanitary science and to present the subject in a most readable and interesting form. It is not a cram book, and lucidity and style are not sacrificed to brevity. The work is brought thoroughly up to date, and bears evidence of careful discrimination in the introduction of new matter and the omission of what is no longer relevant. A new chapter has been added on maternity and child welfare work, and those on personal hygiene, camp sanitation, and communicable diseases judiciously amplified. We are in entire agreement with the authors as to the advantages of installing water-closets rather than incinerators in camps where this is at all possible. The printing, paper, and illustrations are good, and the whole subject is treated so clearly and thoroughly that it forms not only an admirable manual for the student and medical practitioner but also an interesting book for the general reader. We have noted a few mistakes in spelling—for example, Schiga and Zenopsylla should be Shiga and Xenopsylla. The only suggestion we would make is that the authors should include in their next edition an introduction dealing with the development and scope of hygiene and public health administration, as we find that too often students are disposed to regard it as one of the minor subjects. We congratulate the authors on a work which maintains the high standard reached in former editions.

The fourth edition of ROBERTSON and PORTER'S *Sanitary Law and Practice*[4] will be welcomed. It has been brought up to date; some of the new material has been introduced into the text, but the bulk into appendices. In supplying practical suggestions as to the usual methods of administration followed by the medical officer of health and the sanitary inspector the book will be found useful not only to those who already hold these posts but also to those

[1] *Elements of Hygiene and Public Health.* A Textbook for Students and Practitioners of Medicine. By Charles Porter, M.D., B.Sc., M.R.C.P. London: Henry Frowde, and Hodder and Stoughton. 1917. (Cr. 8vo, pp. xiv + 411; 98 figures. 12s. 6d. net.)

[2] *Hygiene and Public Health.* By Sir Arthur Whitelegge, K.C.B., M.D., B.Sc.Lond., F.R.C.P., and Sir George Newman, M.D., D.P.H., F.R.S.E. Thirteenth edition. London: J. Cassell and Co. 1917. (Fcap. 8vo, pp. xii + 736; 77 figures and diagrams. 10s. 6d. net.)

[3] *Hygiene and Public Health.* By Louis C. Parkes, M.D., and Henry R. Kenwood, M.B. Sixth edition. London: H. K. Lewis and Co. 1917. (Demy 8vo, pp. xii + 787; illustrated. 14s. net.)

[4] *Sanitary Law and Practice.* A Handbook for Students of Public Health and Others. By W. Robertson, M.D. Glas., D.P.H., and Charles Porter, M.D., B.Sc., M.R.C.P.Edin. Fourth edition. London: The Sanitary Publishing Co., Ltd. 1917. (Demy 8vo, pp. xxiii + 750; illustrated. 12s. 6d. net.)

who are preparing to qualify for them. It is well written, and the treatment of theory and practice well balanced. The authors have succeeded in placing in the hands of the student a guide which will make his study of what is usually a dry subject quite interesting. We can most heartily commend this volume to the attention not only of the medical graduate studying for the Diploma of Public Health but to all who are interested in the social welfare of the people and who wish to be acquainted with the present position of our country in this extremely important matter. The illustrations are few in number but good.

The moment is timely for the publication of a book on *Public Health Nursing*,[5] and Miss MARY S. GARDNER deserves congratulation for her lucid presentation of a subject which is daily growing in importance as a most essential part of the public health work. Miss Gardner, as president of the American National Organization for Public Health Nursing 1913–16, knows her subject from within, and British readers will find that due prominence is given to the pioneer work in England. In spite of the differences in administrative organization in England and the United States the book will be as inspiring and instructive to British readers as to Americans. The work is divided into three parts. Part I treats of the public health nursing movement, its history, its fundamental principles, and the problems it encounters at the present time. Part II deals with visiting nursing, and in it will be found words of wisdom useful to all concerned in the movement, whether members of visiting nursing associations or persons employed by them. Part III contains chapters on tuberculosis nursing, child welfare nursing, school nursing, mental hygiene nursing, industrial nursing, and medical social service, and on records and statistics. This enumeration indicates the scope of the book and incidentally shows how important a part in preventive medicine the nurse is playing at the present time. It is in the domain of personal hygiene that progress is now most required, and this is the sphere for educated tactful sympathetic women who have pursued a proper course of training and have access to the homes of the people. Little reference is made to the question of venereal disease; we would have welcomed the opinion of the writer as to the position of the nurse as regards its prophylaxis and treatment. The book should be in the hands of all social workers and of all interested in the training of the nurse not merely for the treatment of disease but for its prevention.

In his book entitled *State Sanitation*[6] Professor G. C. WHIPPLE presents a review of the work of the Massachusetts State Board of Health. There are to be three volumes. The first, which is before us, is divided into two parts. Part I contains the history of the State Board of Health, and Part II the report of the Massachusetts Sanitary Commission of 1850. The book forms a worthy memorial to the men who have made the name of Massachusetts familiar to all sanitarians and especially to those interested in water and sewage purification. The author shows how the State Board of Health has fulfilled the ideals set forth by Lemuel Shattuck in the "Report of the Massachusetts Sanitary Commission of 1850," and in this volume can be read in Part I what has been accomplished, and in Part II what Shattuck considered practicable. An interesting chapter contains short biographical sketches of the sanitarians of the Commonwealth. The volume is a valuable contribution to the history of sanitation. The print is large and clear, the paper good, and the illustrations excellent.

NOTES ON BOOKS.

DR. BROCKBANK'S elementary *Diagnosis and Treatment of Heart Disease*[7] has rapidly passed into a third edition, and is thus proved to supply a definite want. A new chapter on the general physical signs and symptoms of heart disease and a number of clinical points have been added. Dr. Brockbank naturally maintains his contention that the crescendo murmur of mitral stenosis occurs in the early part of ventricular systole, and so is presphygmic not presystolic in rhythm. It would perhaps be well in a future edition to alter the statement that digitalis raises the arterial blood pressure. The treatment of angina pectoris between the paroxysms by dilute phosphoric acid, which is said to be followed by great freedom from attacks, and is hinted to remove calcareous deposits from the coronary arteries and to prevent their further deposition, is new and rather surprising, but is possibly worth further investigation.

The first edition of REMINGTON'S *Practice of Pharmacy*[8] appeared in 1885; the sixth has just been issued, with apologies by the editor, who had on this occasion the assistance of Dr. E. FULLERTON COOK, for an increase in its size. It is described as a handbook for pharmacists and physicians, and a textbook for students, but it will, perhaps, be more particularly useful to pharmacists; one of its special features is an unusual number of illustrations of pharmaceutical appliances. The chapter on prescriptions is illustrated by facsimiles of many very curious specimens, some of which we find illegible, though they appear to have been deciphered by the pharmacist; several are curious examples of polypharmacy; thus one of them contains twenty-nine ingredients, another twenty-two. The book is adapted to the United States *Pharmacopœia*. In a final section a formulary of unusual preparations and a glossary of uncommon names, terms, and substances are provided. There is a good index.

[5] *Public Health Nursing.* By Mary Sewall Gardner, Superintendent of the Providence District Nursing Association, etc. New York: The Macmillan Co. 1917. (Cr. 8vo, pp. 372. 7s. 6d. net.)

[6] *State Sanitation.* A Review of the Work of the Massachusetts State Board of Health. By George Chandler Whipple, Professor of Sanitary Engineering in Harvard University, etc. Vol. I. London: Humphrey Milford, Oxford University Press. 1917. (Med. 8vo, pp. xi + 377; illustrated. 10s. 6d. net.)

[7] *The Diagnosis and Treatment of Heart Disease: Practical Points for Students and Practitioners.* By E. M. Brockbank, M.D.Vict., F.R.C.P. Third edition. London: H. K. Lewis and Co. 1917. (Cr. 8vo, pp. 147; 22 figures. 4s. 6d.)

[8] *Practice of Pharmacy.* By J. P. Remington, Ph.M., Phar.D., F.C.S., assisted by E. Fullerton Cook, P.D. Sixth edition. Philadelphia and London: J. B. Lippincott Company. (Medium 8vo, pp. xxviii + 1987. 35s. net.)

DIMINUTION OF PAGES IN THE "BRITISH MEDICAL JOURNAL."

FURTHER RESTRICTIONS BY THE PAPER COMMISSION.

THE Paper Commission has issued an Order under the Defence of the Realm Act reducing the licences for the importation of paper and paper-making material in the year beginning March 1st, 1918, to two-thirds of the tonnage imported in the year ending February 28th, 1918. This reduction takes effect on a supply which had already been reduced by one-third, owing to previous orders by the same authority. This means that the amount of paper available in 1918 will be half, or rather less than half, the amount available in 1915. The number of pages in the weekly issues of the JOURNAL must therefore be reduced in this proportion.

This reduction in the number of pages is not a matter in which the Association has any choice. The Council at its last meeting adopted the following resolutions:

PAPER SUPPLY.

I. *That an announcement be made in the* BRITISH MEDICAL JOURNAL *on the authority of the Council drawing the attention of Members to the fact that from the first issue in March the number of pages of the* JOURNAL *must be still further reduced by one-third, and particularly to the following points:*

(1) *That this reduction is not a matter of choice with the Council, but compulsory under the Defence of the Realm Regulations; and*

(2) *That, as in the case of other rationed articles, there is no guarantee that a sufficient supply of paper or paper-making materials will be available in the country to furnish to each consumer the proportionate minimum quantity permitted under the amended regulations.*

The aim must be to maintain a due balance between the different departments of the JOURNAL to each of which large sections of its numerous readers attach importance; and this principle must be applied also to advertisements. The aim can only be satisfactorily attained if all members of the Association who desire that their observations and opinions should find expression in the JOURNAL will frankly recognize the position that has been brought about owing mainly to the necessity of diverting shipping to the transport of food and of the raw materials and implements of war.

British Medical Journal.

SATURDAY, MARCH 2ND, 1918.

WOUND SHOCK.

IN last week's issue of the JOURNAL we dealt with two of the reports of the Special Investigation Committee on Surgical Shock and allied conditions, deferring for further consideration the papers dealing with an investigation of the nature and treatment of wound shock. Of the six papers constituting this report, five are clinical studies of the circulatory functions, which, "whatever the nature of the bodily changes which underlie the state of shock, . . . are in a precarious condition."

The contribution on the initiation of wound shock by Captain E. M. Cowell, R.A.M.C.(S.R.), is a valuable and highly interesting study of blood pressures among soldiers in forward areas and the front line in "peace" and in active periods. He comes to the conclusion that "the psychology and physiology of the average healthy 'veteran' soldier, living in the fighting zone under 'peace' conditions, are for practical purposes normal," but at times of increased activity, although the pressures are invariably above normal, the conditions of excitement, cold, thirst, fatigue, and possibly loss of sleep, become important pre-wound factors in the initiation of shock. He classifies wounds, and finds that "trivial" wounds give rise neither to primary nor to secondary wound shock; with moderately severe wounds primary shock is generally absent, and the secondary form may be averted if conditions admit of proper precautions being taken. Serious wounds, that is, those likely to be mortal, are attended by primary shock, which, generally speaking, merges insensibly into secondary, notwithstanding efforts to avert the injurious influence of cold, pain, anxiety, a long "carry," and, in the case of survival, toxaemia. These are the usual, theoretically preventable, causes. Wound shock as seen at casualty clearing stations, where the majority of these clinical studies were made, is in fact secondary shock.

Captains John Fraser and Cowell give an elaborate account of the sphygmomanometric findings in the most important types of wound, the full value of which appears later. Incidentally it bears out Bayliss's experimental investigation of the relative value of various intravenous injections, and also suggests that similar observations may be useful for prognosis. A wound running a favourable course shows a steadily maintained blood pressure; the onset of gas gangrene or other infection is signalized by a sudden fall: a steadily rising or maintained high pressure reading, even in a severe wound, may be taken as a most favourable prognostic sign.

Professor Cannon, of Harvard, and Captains Fraser and Hooper relate the results of venous and capillary red counts, with haematocrit and haemoglobin readings in cases of low blood pressure. In shock, with a normal venous red count, the capillary count is higher by as much as 2 millions per cubic millimetre, and the discrepancy bears a direct relation to the depth of the shock. Haematocrit and haemoglobinometer readings confirm these findings, which are interpreted as indicating that the "lost" blood in shock is hidden in the general capillary system and not in the veins of the splanchnic area. Once established, concentration of capillary blood persists for two or three days; further persistence is of bad omen, and conversely. On the other hand, continued dilution after four or five days suggests an unfavourable prognosis.

Professor Cannon reports also the results of an investigation into the diminution of the alkali reserve in shock, and reaches the conclusion that bodily states characterized by reduced blood pressure, and consequently by defective circulation, are accompanied by such a diminution, or "acidosis," and that, broadly speaking, the lower the pressure the lower the alkali reserve. Haemorrhage alone is attended with less reduction of the alkali reserve than wound shock; the maximum reduction is seen in cases of gas infection. Operation and anaesthesia reduce the alkali reserve, but the encroachment is greater as the margin of safety is less; the marked and sudden decrease of the alkali reserve in the blood is accompanied by serious and rapid sinking of arterial pressure. Acidosis, even extreme, can be relieved by the administration of sodium bicarbonate. The most important outcome of the studies is, perhaps, the indication that a very low blood pressure—an easily and rapidly observed fact—is almost certainly attended by that grave diminution of the alkali reserve which makes operation perilous, but which is remediable by administration of sodium bicarbonate intravenously before or during operation; moreover, the diminution can be minimized by systematic administration of bicarbonate in sweetened drinks at every point from the aid post down to the casualty clearing station.

A paper, by the same three authors, on the application of these findings to the preventive treatment of wound shock, for anything novel that it offers, seems rather a "small mouse," but of course everyday practice has not waited on publication, so that nearly everybody is already familiar with the measures suggested, though the details should certainly be circulated; and it is satisfactory to learn that the proper gum and bicarbonate solution is to be provided in sterile bottles ready for use.

Yet another paper by Professor Cannon, a consideration of the nature of wound shock, is of a different order. Some of its paragraphs, as their very language shows, are of a highly speculative character, whilst the work of Henderson, Crile, and others is, as it were, "dealt with kindly but firmly." The outcome of his study of the results of this work and Bayliss's, and other research along the same lines, is that the condition met with in hospitals in forward areas, and here called secondary wound shock, would be best described as "exaemia," implying that, as a consequence of fall of blood pressure, diminution of alkali reserve, alteration of viscosity, and perhaps other inter-related factors, blood is lost from currency, and vitality imperilled. It is comforting, at any rate, that "exaemia" is amenable to simple remedies; they ought to be and are being put into universal practice. This is not to say that the whole problem of shock has been solved, and probably for that very reason the Committee has not as yet issued these reports for sale, looking upon them as interim contributions useful to workers elsewhere. All the work is valuable, and Captain Cowell's observations in the trenches under bomb fire are deserving of the highest praise.

MASSACHUSETTS AND PUBLIC HEALTH.

A recent work by that distinguished American sanitarian, Professor George Chandler Whipple, puts on record the great services rendered by "the glorious old Bay State," Massachusetts, to the cause of sanitary science. In America, as in England, it is the existence of large waterworks, systems of sewage disposal, baths and bath-houses, the provision of parks and playfields, the supervision of the health of the mother, the child, and the worker, and of the quality of the food consumed by them, rather than learned treatises on the subjects, which make the English-speaking race leaders in practical hygiene. In democratic countries the existence of such works and institutions implies the presence of an enlightened public opinion. In producing this a large part is played by the epidemic visitations, and still more by the work of enthusiasts in the cause of hygiene and sanitary reform. In England Edwin Chadwick and in America Lemuel Shattuck will always find an honourable place in sanitary history—a history really dealing with the lives of the people, their health, comfort, and physical and moral welfare. Neither of these eminent men belonged to the medical profession, but as a profession we are proud to claim that it was the *Reports on Fevers in London*, by Neil Arnot, M.D., James Phillips Kay, M.D., and Southwood Smith, M.D. (1838), which caused action to be taken. Their work gave an opportunity to Edwin Chadwick, the secretary of the Poor Law Commissioners, to issue his epoch-making *Report on the Sanitary Condition of the Labouring Population of Great Britain* (1842), which led Parliament to pass an Act for promoting the public health in 1848.

In Massachusetts the problems involved in the prevention of disease early obtained attention. Thus Jenner never had more enthusiastic and faithful disciples than Drs. Waterhouse and Jackson of Boston. Dr. Waterhouse, on July 8th, 1800, vaccinated seven members of his own household. Shortly afterwards, as a convincing test, three of the children were sent to the small-pox hospital, and one was even inoculated with small-pox matter, but none of them contracted the disease.

In 1848 the provision of abundance of wholesome drinking water was undertaken in Massachusetts. The disposal of waste and sullage water was dealt with in an Act passed by the Great and General Court or Assembly of Her Majesty's (Queen Anne) Province of the Massachusetts Bay in 1709. Under this Act for 115 years the sewers of Boston were built, repaired, and owned by private individuals. The results of this lack of central responsibility were a highly insanitary condition of the soil and interminable disputes between owners of property. The City government assumed control of the sewers in 1823, and in 1833 the passage of liquid sewage from cesspools into them was permitted. In 1849 the Commonwealth of Massachusetts appointed three commissioners to make a sanitary survey of the State. Lemuel Shattuck wrote their report, which was published in 1850, and sketched an ideal of public health administration quite within the range of practical attainment at the time. But, as Dr. Bowditch has put it, this report "fell stillborn from the hands of the State printer." Not till 1869 was the time ripe for Shattuck's ideals, and in that year an Act creating the State Board of Health was passed. The board consisted of seven members, of whom three were physicians, one a lawyer, one a civil engineer, one a historian, and one a business man. The first chairman of the board was Henry J. Bowditch, whose name is familiarly linked with that of Buchanan in England as the sanitarian who showed that the spread of consumption is closely associated with dampness of the soil. "The State Board of Health was founded on a noble ideal, and has been supported by sound public sentiment. Its organization and work have been non-partisan; its functions have been conceived to be advisory rather than coercive, educational rather than punitive; yet, when occasion required, it has not hesitated to demand the exercise of the police power of the State through its legal machinery. By co-operating with other State departments, metropolitan boards, and local authorities, it has given them the advantage of its knowledge and the services of its experts. The State Legislature has liberally supported it, and last, but by no means least, it has maintained a remarkable personnel." It was good policy of the board to invest its money in brains and not in buildings—and here some of our universities might note and learn—and it was able to attract the services of the very ablest men in the country. The reports of the board contain the results of investigations in every field of public health. It is interesting to note that in a paper on the ventilation of schoolhouses Mr. A. C. Martin, an architect of Boston, contested the current view that carbonic acid was the chief noxious ingredient of vitiated air; he held that watery vapour and animal matter given off by the lungs and skin were of greater significance. The recent work of Leonard Hill has emphasized the importance of moisture, heat, and stagnation of the air in causing the symptoms produced by a vitiated atmosphere.

In 1886 the State Board of Health was reorganized under the chairmanship of Dr. Henry P. Walcott, who held this post for twenty-eight years and carried out his duties with such thoroughness and exercised such discrimination in the selection of the personnel of the officials of the board as to attract to the work done in Massachusetts the attention of the whole sanitary world. So far as the purification of water and sewage are concerned it is not too much to say that the board's experiments were of capital importance. They showed that the oxidation of the organic matter was not a physical action alone and was not dependent upon the passage of sewage through fine material, as the process of nitrification occurred in coarse gravel filters as well as in those of sand. This germinal idea was developed by English sanitarians and led to the extensive use of contact beds and trickling filters, which have rendered the problem of sewage disposal so much simpler. The work at the Lawrence experiment station in Massachusetts has shown that instruction in biology, and especially in bacteriology, should enter into the curriculum of the engineering student, and this is now being recognized by some British universities.

The Massachusetts State Board of Health took the lead in 1895 in a movement having a more direct medical bearing than those hitherto undertaken—the manufacture and free distribution of antitoxin and vaccine lymph. Here the board was fortunate in securing the services of Dr. Theobald Smith, who had just been appointed Professor of Comparative Pathology in the Harvard Medical School. Soon the scope of the bacteriological work was extended so as to include examination of sputum, blood, and secretions for evidence of the presence of infecting germs.

Harvard University and the Massachusetts Institute of Technology contributed greatly to the success of the enterprises of the board. In 1914 an Act was passed creating a State department of health, under

which a commissioner of health, with a public health council of seven, the commissioner himself being the eighth member, exercise all the powers and perform all the functions of the State Board of Health. Four of these members are physicians, one is a hygienist, one a biologist, one a sanitary engineer, and one a lawyer. The Public Health Council is organized into three separate standing committees. The salaried force is arranged into seven divisions, each in charge of a director, who reports to the Commissioner of Health. The work of this new and elaborate State Department of Health will be watched in this country with interest. We may learn from the experience of our cousins and staunch allies in the Commonwealth of Massachusetts much which will be of value to us in the task of setting up a Ministry of Health.

SIR ALFRED KEOGH.

SIR ALFRED KEOGH has this week vacated the office of Director-General A.M.S., and has been welcomed at the Imperial College of Science and Technology on resuming the office of Rector. In the debate on the Army Estimates, reported elsewhere, Mr. Macpherson, the present Under Secretary for War, and Mr. Tennant, who held that office in the early days of the war, both paid very high tributes to his magnificent work during three and a half difficult years, and we know that he has recently received many private expressions of the admiration and esteem with which his work is regarded by those who have been most intimately associated with him in the conduct of army medical affairs since a very early stage of the war. We desire to associate ourselves with these tributes to a great public servant. We have had occasion recently to criticize some aspects of army medical administration, especially in respect to the organization of the home Commands, and to suggest certain changes which will, we believe, make for economy and greater efficiency. We know that in calling attention to these defects we have only expressed the views of a large number of medical men of wide civilian experience; but the belief that the machine can be made to run better does not blind them or us to the great qualities of the man who has been in charge at home through a period of unexampled stress. As we said when his approaching retirement was announced, Sir Alfred Keogh has shouldered day after day a burden of responsibility and labour which only a man of his energy, enthusiasm, and mental calibre could carry. In the earliest stage, putting into action a scheme he had brought into existence during his first term of office, he turned to the civilian profession for assistance, and it was very fully given. The military hospitals with their staffs, for which the Territorial scheme provided, were quickly in working order, and the plan proved capable of great extensions. In the army abroad the methods elaborated before the war for the prevention of diseases of the typhoid group have worked on the larger scale with a success beyond the hopes of the most sanguine. When new problems arose—such as that created by the frequency and severity of wound infections—resort was freely had to scientific research and clinical experience to overcome them, and step by step they have been overcome; and so with other problems as they have arisen. Nothing that energy, knowledge, or money could provide has been spared for the benefit of the soldier. The bulk of the British Forces are engaged on the Western front, and in no other war have the wounded experienced so many alleviations of their lot as have been provided for them there. The work has all been done in a spirit of comradeship between regular officers and those drawn from civil life which reflects honour on both. In the institution of clinical and laboratory inquiries, and in the application of results to treatment, the directing hand of Sir Alfred Keogh has everywhere been felt. The debt of gratitude due to him by the nation and by his own profession cannot be paid, but it will not be forgotten.

THE NEW CHARTER OF THE LABOUR PARTY.

THE Labour Party has enlarged its constitution, and in future will receive within its fold professional men who may be willing to subscribe to its articles of faith—which, however, are to be susceptible to change. When the new charter was submitted to the conference at Nottingham last month there was hesitation, and by a small majority on a card vote, it was referred to the adjourned gathering, which was held in London last Tuesday. Then the opposition broke down, and, subject to some small amendments, the original recommendations of the executive were adopted. It is interesting to notice what were the two lines of objection to the change. The trade unionists were at first divided—a number fearing that the party would lose its essential character, and therefore its vitality, from the addition of members not belonging to what may be called the crafts. The Independent Labour Party, and other pronouncedly socialist bodies, were perturbed because their over-representation on the executive which existed under the old method of election would be ended. The case of the first-named was met by an amendment which increases the representation of national organizations on the Executive Committee from eleven (which was originally proposed) to thirteen, the representation of local organizations being left at five, and the representation of women at four, which were the figures in the draft plan. Thus the Executive Committee will comprise twenty-two members, of whom thirteen will be trade unionists. The Independent Labour Party, in its effort to keep up separate representation, suffered defeat by an overwhelming majority. Whatever strength it has will be exercisable only in the ordinary voting. No special party representation is to be allowed. The trade unionists, the local parties whose organizations will be according to constituencies, and the women, will be the power behind the machine—that is, behind the Executive Committee as elected and controlled by conferences. The charter, with its arrangements for local elections, for framing and varying policy, for support of candidates for seats in Parliament or on local authority, is practically what it was when we noticed it in draft in the issue of the BRITISH MEDICAL JOURNAL of December 15th. The feature of the enlargement of the scope of the party is the appeal to workers by head to join workers by hand in becoming members by obtaining admission to local parties, which, as already indicated, will be made up on constituency bases. Mr. Henderson, in his book *The Aims of Labour*, says the "net is being cast wide" because it is "realized that real political democracy cannot be organized on the basis of class interest." The four principal aims foreshadowed in the memorandum on "Labour and the new social order" are: (1) The universal enforcement of the new national minimum wage; (2) the democratic control of industry; (3) a revolution in national finance; and (4) the surplus wealth for the common good. In his speeches Mr. Henderson has said there is no intention that anything should be done suddenly or violently. Phrases of the kind just quoted are elastic enough to be capable of greatly varied interpretation according to individual opinion and desire. As regards consideration for capital, it has to be remembered that the trade unions themselves have large financial interests, and may be expected to shun Bolshevikism like a plague. But the new organization opens fresh political possibilities, all the more uncertain because the Reform Act has added so many more millions to the electorate.

GERMAN RED CROSS "LADIES."

Boys of a past generation used to read Fenimore Cooper's stories of Red Indians. His books seem to have gone out of fashion, although, as his biographer says, he had considerable powers of description and could tell a tale of

adventure as well as most. The hero sometimes was captured by the red man and taken to the camp to be tortured. Occasionally his courage and noble demeanour appealed to the braves, who might be disposed, if not to save his life, at least to excuse the preliminary atrocities. But, if this happened, the women of the tribe demanded the utmost rigour, showing themselves more cruel than their men. Since those days the Red Indian has risen in the scale of culture, and to-day has not only enlisted in large numbers to fight in the cause of freedom, but has subscribed largely to the Red Cross. Judging from her conduct to British prisoners of war, as related in a white paper[1] on the transport of British prisoners of war to Germany, the German woman is still in the primitive stage of ethical development out of which the Red Indian has emerged. Not only did the German officials discriminate against British wounded taken prisoners early in the war, but the German "ladies" of the Red Cross deprived British wounded of food and even of water, and insulted them, and tantalized them by showing food to the starving prisoners and then removing it, and by bringing water and soup in cans and pouring it out on the platform in front of the English. The women, the report says, "were extraordinarily venomous in preventing anything from reaching the prisoners, and their general display of spite, their heartless cruelty, their profusion of gross insult were barbarous beyond all words. One officer tells how a woman of the Red Cross brought him a glass of water, spitting in it first. Very occasionally it would happen that a German officer would order one of these women to bring something for the prisoners, which she would do most unwillingly, and even with *averted* face" (italics in report). Well-dressed women were constantly prominent in the scenes of insult and outrage at railway stations, and at some wayside places rows of school children had been drawn up and chanted choruses of abuse. When the prisoners reached their place of confinement they were marched through "immense spitting, threatening crowds, mostly well-dressed people of the middle classes, which thronged the streets." German officers often took an active part in these pitiable proceedings, but the British prisoners received some kindnesses from their Senegalese fellow prisoners, and some of the German rank and file would give them a little of their own food "when there was no chance of their being seen by the ladies of the Red Cross." The Government committee on the treatment by the enemy of British prisoners of war, which has drawn up the report, takes care to quote the statement that in one instance "the Red Cross behaved very decently"; but it is added, "in view of the evidence there can be little doubt that the reference is to the German Army Medical Service, not to the Red Cross Society." The report states that the "persistent degradation of the Red Cross, universal emblem of charity in warfare, caused the deepest possible impression on the British prisoners, both officers and men." The behaviour of the German Red Cross is declared to have been "most revolting," and the fact makes it difficult to accept the distinction President Wilson wished to draw between the German people and their Hohenzollern rulers. The German Emperor may be personally responsible for the torpedoing of the *Lusitania*, as Mr. Gerard holds, and for the sinking of hospital ships, of which we have another instance this week, but he can hardly have ordered German Red Cross women to spit in the water before handing it to the wounded, or German ladies in evening dress to shout and shake their fists from an open window as the prisoners were marched through the street.

[1] Miscellaneous, No. 3 (1918). Price 6d. (Cd. 8884.)

A NEW SYPHILITIC SYNDROME.

THE Wassermann test is constantly adding presumptive evidence in support of the view that syphilis is the underlying factor in many chronic diseases of obscure origin. This is particularly true as regards the nervous and vascular systems, whereas the alimentary, and especially the respiratory organs, still offer opportunity for further application of this generalization. Luetic affections of the liver and pancreas are, of course, sufficiently well recognized, but the high percentage of positive Wassermann reactions in ordinary cirrhosis has again raised the old view of a syphilitic origin. Sometime ago the possibility of a relation of syphilis to appendicitis was raised, but the suggestion was unsympathetically received. There appears to be more reason to consider Leredde's[1] contention that the definite syndrome of severe dyspnoea on exertion dating from early life or adolescence, combined with advanced emphysema, recurrent attacks of acute febrile bronchitis, and often with asthma, is a remote sequel of syphilis, usually congenital, and characterized by fibrosis. The acute attacks are evidently a complication depending on special liability to infection. Out of 20 of such cases 7 gave a positive Wassermann reaction, and among the remaining 13 there were undoubted clinical manifestations of syphilis in all but two. Antisyphilitic treatment, especially arseno-benzol in gradually increasing doses, is recommended.

[1] Leredde, *Paris méd.*, 1917, vii, 225.

VISITS TO FOREIGN HEALTH RESORTS.

WE are informed that the Military Permit Office has been instructed to reduce all cross-channel traffic to the lowest limits consistent with the national interest and the avoidance of unnecessary hardship to individuals. Permits are now limited to those cases only in which the absolute necessity of the journey can be satisfactorily established. Before any application which is made on the ground of ill health is considered the applicant is required to produce a doctor's certificate stating that the journey is an absolute necessity, specifying the place to which the journey is to be made, and the length of stay there, and certifying that there is no health resort in Great Britain which would meet the case; when the application includes a request for a companion the medical man must include in his certificate the statement that a companion is essential, and the name of the companion. These regulations do not apply to persons seeking permission to visit a wounded relative. The regulations, therefore, appear to apply solely to persons who consider that it would be to the advantage of their health to visit some place on the Continent, most usually the Riviera. We have been asked to bring the decision of the Military Permit Office to the notice of members of the medical profession and to invite them to exercise the utmost discrimination in giving certificates. The essential points seem to be that the doctor must certify that the journey is an absolute necessity, and that there is no health resort in Great Britain which would meet the case. It is clear, therefore, that the total number of medical certificates to this effect which need be given must be extremely limited; in fact, we find difficulty in thinking of any condition as to which it could be said that there is no health resort in Great Britain which would meet its needs.

THE LIFE-HISTORY OF ASCARIS LUMBRICOIDES.

INFECTION with the round worm is a comparatively uncommon and comparatively trivial affair to dwellers in Great Britain. But this worm has a cosmopolitan distribution, and ascariasis, or the condition of infection with it, is an important matter in hot countries. Indeed, Major F. H. Stewart, I.M.S., some of whose work on the subject has already been published in the BRITISH MEDICAL JOURNAL,[2] goes so far as to state that "there is reason to suppose that a great deal of the debility of the natives of the tropics is due to ascariasis, and that this disease is

[2] BRITISH MEDICAL JOURNAL, July 1st, October 7th, and December 2nd, 1916.

at least the equal of ankylostomiasis in economic importance." Major Stewart has published in the current issue of *Parasitology* an account of some further experiments designed to clear up obscure points in the life-history of *Ascaris lumbricoides*, which occurs in man, and *A. suilla*, which infects pigs. More particularly he has endeavoured to determine whether these ascarids normally complete their life-cycle in a single host, or, alternatively, require an intermediate host for their development, such as the rat or mouse, before maturing in the definitive host, man or pig as the case may be. There is good reason for believing that in human beings, pigs, rats, and mice the eggs of these ascarids when ingested by the mouth first develop into larvae in the lungs and tracheae of their hosts. Can these larvae then enter the alimentary tract and develop into the corresponding round worms? The question is one that should be capable of fairly easy solution, as Major Stewart points out. His own experiments, unfortunately interrupted before completion, are not in favour of the theory of direct development without an intermediate host. But they leave the question still open. It is interesting to note that the development of fever and dyspnoea, evidence of pulmonary involvement, a few days after the ingestion of several dozen eggs of *A. lumbricoides* by children, was observed by Mosler as long ago as the year 1860.

VENEREAL DISEASES.

THE KING'S visit last week to the Rochester Row Hospital was publicly stated to be due to His Majesty's recognition of the importance of the movement dealing with venereal diseases, and his sympathy with the practical efforts now in progress to combat this national danger. A royal visit to a hospital for venereal diseases is an encouraging sign of the changed outlook on this problem, and there are other indications of improvement. Thus, in a circular issued by the Local Government Board on February 22nd, on the prevention and treatment of venereal diseases, the President records his appreciation of the fact that county and borough councils generally have shown their readiness to undertake the new duties imposed by the regulations, and have been successful in a large majority of cases in their negotiations with hospital authorities and other bodies for the provision of the necessary facilities for diagnosis and treatment. The circular goes on to point out that for certain classes of cases additional accommodation is needed, and should be provided wherever possible. Thus, the treatment of lying-in women and expectant mothers suffering from venereal disease is a matter of national importance both in the interests of the mothers and of their offspring. Councils are therefore urged to consider what steps can be taken to secure additional accommodation for these cases either by obtaining beds at existing lying-in or general hospitals, or, failing these, at special institutions or nursing homes. The Board will be prepared to make a grant of 75 per cent. of all expenditure approved by it for this purpose. In this connexion the Board draws attention to the importance of the Wassermann test for patients who have had miscarriages, and of examinations of material from cases of stillbirth. It is deemed desirable that when these cases are notified the medical officer of health should make discreet inquiries into the circumstances through the medical practitioner in attendance. Lastly, the circular refers to the need for special accommodation in the form of hostels for certain classes of women and girls, such as shop assistants and domestic servants, who are infected with venereal disease and whose home conditions are not satisfactory. The Board encourages councils to contribute towards the maintenance of satisfactory hostels, and is willing to make a grant of 75 per cent. of the amount of any contribution approved by it. We may also refer to a circular to medical practitioners on the subject of venereal diseases issued recently by the Public Health Department of the London County Council. This emphasizes the need for the hearty co-operation of the medical profession in the Council's scheme for dealing with these diseases. Details are given of the special facilities which, after conferences with representatives of the medical profession, have been provided at the twenty-five hospitals with which the Council has entered into agreement. Dr. W. H. Hamer, the medical officer to the Council, expresses the hope that medical practitioners will take the fullest possible advantage of all the facilities provided, and communicate with him should difficulty be experienced.

Medical Notes in Parliament.

The Air Medical Service.

IN the House of Commons, on February 21st, Major Baird, the Parliamentary Secretary to the Air Ministry, presented the estimates for the coming year, and made a lengthy statement as to the reconstitution of the air forces. Speaking of the medical service, he said that a committee, under the chairmanship of Sir Watson Cheyne, had, at the request of the Air Board, drawn up a scheme for a medical service. Major Baird hinted that there was some apprehension on the part of the army that a separate air medical service might lead to friction. He claimed, however, that the arrangement made met the views of the navy and the army, and would render it possible to cary into effect the system advocated by the committee. The two indispensable conditions—that medical officers responsible for the care of the officers and men serving in the air should specialize in that particular branch of medical science, and should not be changed indiscriminately—had been secured. It had been agreed by the War Office and the Admiralty, with the assent of the Treasury, that the medical affairs of the air force should be controlled by a committee responsible to the Air Council, and composed as follows: The Director-General of the Naval Medical Service, the Director-General of the Army Medical Service, the Vice-President of the Air Council, a Medical Administrator of the air force, an Assistant Medical Administrator who would act as secretary, one neurologist, one physician, one surgeon, one physiologist, and the secretary of the Medical Research Committee. The Medical Administrator would be given the substantive rank of surgeon-general, and the Assistant Medical Administrator that of lieutenant-colonel. The Medical Administrator would nominate an executive staff of medical officers, and would arrange for the necessary clerical assistance. He would be given discretion to take action on any matter of urgency, and on matters of detail arising in the intervals between the meetings of the committee. The medical arrangements of the air force would be centralized under the direction of the committee as soon as possible. All medical appointments would be made by the President of the Air Council on the nomination of the committee. Officers appointed to the air force medical posts would be seconded to that force. Temporary air force commissions would be given to all those, whether already officers or not, appointed to executive medical posts, but a limited number of officers would be nominated by the committee for permanent commissions. All medical officers appointed to the air force would wear air force uniform. Officers seconded from the army and navy would receive an assurance in writing that their prospects of promotion by selection in their own services would not be prejudiced thereby. The Medical Administrator would have direct access to the Secretary of State for the Air Force, and the medical arrangements of the air force would be dealt with in the department of the Master-General of Personnel.

In the course of the debate Mr. Joynson-Hicks, after some general congratulations on the improvements in the air service, said it would have been better to have established a special medical air service apart from the Royal Army Medical Corps. Referring to the necessity that a technically trained physician should be appointed for every detachment of the air service at home, Mr. Joynson-Hicks remarked that he could take Major Baird, who had trained a detachment in this country, with 700 or 800 men under training, who not only had no medical man attached to them, but whose aerodrome was no even in telephonic communication with a

condition of things must be altered at the earliest possible moment. Touching the question of accidents, Mr. Joynson-Hicks asked that the system of training airmen should be overhauled. He quoted with particular appreciation the article by Mr. Graeme Anderson which appeared in the BRITISH MEDICAL JOURNAL in January, with particulars of investigations extending over six months.

Sir Watson Cheyne, in dealing with the medical aspects of aviation, said that the human being was constructed to live upon the earth, and all his mechanisms were delicately linked together for living under those conditions; he was not constructed to live under water, or up in the air. The two important conditions, so far as was known at present, were the atmospheric pressure and the density of the air—the density of the air especially, because with a suitable density the proper amount of oxygen was available. People might live on the sea level, or 5,000 or 6,000 feet above the sea level, and could go from one to the other without great discomfort, if the transition was not too quick. A day or two was spent by mountain climbers in reaching 10,000 feet, but a flyer went up 10,000 feet in a few minutes, and the human mechanism had not time to adapt itself. This was especially true when that height was exceeded. As the aviator mounted he came into air that did not contain so much oxygen as was necessary; to take in the required amount he began to breathe faster, and the heart beat quicker, until, at a considerable height, the heart began to fail, the man began to lose consciousness, and might actually faint. Although that was not always fatal, because of the steadiness of modern machines, a good many never recovered from that faintness, or, if they did, found they were dashing to their doom. Nowadays aviators were provided with oxygen for inhalation, but they differed very much in the heights to which they could go without employing it. Almost more important than heart and lungs was the nervous system, which, up in the air, was acting, quite unconsciously to the individual, under great strain in maintaining equilibrium. He did not know that any aviators were consciously frightened, but their nervous system was frightened. Although the aviator had no feeling of fear, the brain was getting exhausted in its efforts to overcome the dangers surrounding him; exhaustion came specially in a rapid descent from a high altitude. True binocular vision, especially when travelling at a great speed, and rapid connexion between sight and action were so necessary, that in selecting pilots it was most important to ascertain that they were perfect in these respects. Very often it had been discovered that one eye was not used at all; such a man should not be allowed to enter the service. The troubles of low flying were not nearly so marked as of high flying (10,000 feet and over).

For the reduction of aviation dangers the first necessity was to have a set of trained doctors in contact with aviators. They would in the first place furnish the statistics and observations on which to build up the theory. The skilled medical officer could ascertain to what height an aviator might go safely, and to what height he might go with oxygen. Air medicine was so new a subject that it was not taught in the schools. Only a few were working at it, and the number engaged in regulating the admission of pilots was small. Another point was that medical men should be in close touch with aviators to keep an eye on them. High flying had a cumulative effect on the aviator. A man went up the first day and perhaps he was a little elated; much the same thing would happen for three or four days, but then he began to find he was not quite up to the mark; in other words he was getting stale. A superior officer wanted a man, and he asked a commander to send along one of his best men—it might be from a unit where the medical man knew nothing about air illnesses; hence might come disaster to the aviator. What was wanted was a medical man with some force of character who would say, in a case of this kind, to the general, "You must not send up that aviator; it is not safe." A medical man of the air service ought to stand in much the same relation to the men as the athletic trainer to those he trained. If this work were done properly, double the number of doctors at present at aerodromes would be needed. There were also what might be termed "air diseases." One was distension of the intestine by gas, probably on account of the diminution in the air pressure. It caused pain and vomiting, but recovery followed a few days' rest.

These were the chief reasons for a medical air service, the members of which should devote themselves wholeheartedly and permanently, or quasi-permanently, to this work. The army and the navy between them apportioned a certain number of medical officers to the aerodromes to attend to the flying men, and the new service ought to take over the whole of the men doing that work in England, and thus get a nucleus for a service. This would cost the navy and army nothing in the way of men. The service should also get its share of the new men, including men too old for conscription, but keen to do this work. Sir Watson Cheyne said he did not like putting a money value on an aviator's life, but an airman was reckoned to cost the country about £900, and his machine roughly about £4,000. If an aviator were killed and his machine were wrecked, there was a loss, roughly, of about £5,000. If one hundred lives and machines could be saved in the course of a year, the State would save half a million of money, and that would pay for the expense of the whole air medical service. He did not think, however, that expense ought to have anything to do with the matter. He regretted that a completely separate air service was not proposed, but felt it best to accept the compromise under which members of the other services were nominated on the Administrative Committee. It obviated further delay, and medical men would be in training, which was the main essential; after the war there must be a separate air medical service.

In the course of the debate Sir Hamar Greenwood said he was sorry that Sir Watson Cheyne, with a unanimous committee of distinguished men behind him, had not stood to his demand for a completely separate medical service; and Major David Davies expressed the same regret. The advisory committee of medical men appointed by the Air Board reported quickly, but apparently their report did not meet the views of the Directors-General of the army and of the naval medical services. The result had been a delay of two months. It was a slur on the members of the committee to have asked them to spend a great deal of time and trouble in preparing this report, and then to have turned it down. There was another example of the same kind of procedure in regard to the report of the committee sent to France to inquire into the arrangements of the Royal Army Medical Corps there. That report was sent in, he believed, five months ago; so far as he understood it was still being considered by the Army Council, and no steps had been taken to carry out the recommendations. What usually happened was that these reports were put on one side and a new committee was set up, which proceeded to consider the whole matter afresh in the hope that a report more in accordance with the views of the permanent officials would be produced.

Major Baird, in replying to the criticisms, said that at the request of the Director-General of Military Aeronautics military medical authorities had been working on special lines in regard to the Royal Flying Corps. The officers were now examined by a special medical board before they were sent to France. Another staff was engaged in the medical examination of officers suffering from disabilities caused by flying. A special type of hospital had been set apart for the treatment of members of the flying force, both military and naval; in addition, a Royal Flying Corps Hospital, maintained by private subscription, had been at work for more than two years. It provided accommodation for seventy serious cases, and for more than 100 convalescents. He added, in reply to questions, that candidates for service as air pilots were rigorously examined by a special medical board in London, and that the administrator of the air medical service would not be on the Air Council, but would have direct access to the Secretary of State.

Army Estimates.

The Work of the Army Medical Service.

In his speech introducing the Army Estimates, on February 20th, Mr. Macpherson paid warm tribute to the work of the Royal Army Medical Corps. Having recalled figures as to the satisfactory conditions in France as compared with the experience of armies in the past, Mr. Macpherson said that owing to climatic reasons the conditions in Salonica were not so satisfactory. But the amount of sickness in the Salonica army had in 1917 been reduced to two-thirds of what it was in 1916, and the death-rate in 1917 had been reduced to one-third what it was in 1916. Having remarked that the success and gallantry of the Army Medical Service had given it a place in the army which it had never had before, the Minister said it had now been arranged that the term "lieutenant-general" or "major-general" should be applicable to a surgeon-general, and in future a general in the Royal Army Medical Corps will be known as lieutenant-general or major-general "A" or "B," surgeon-general to the forces.

Sir Alfred Keogh.

No one had been more responsible for the success of this branch of the service than Sir Alfred Keogh, who, coming

forward at the beginning of the war, after a brilliant career, had assumed control of the service he had so long adorned. He would soon go back to the scientific work which he loved. Mr. Macpherson therefore took this opportunity publicly, on behalf of the Army Council and the army as a whole, and, indeed, on behalf of the whole of the people in this country who had friends in the army, to acknowledge the magnificent work of Sir Alfred Keogh during three and a half years of strenuous toil.

Mr. H. J. Tennant (Under Secretary of State for War 1912-16) reminded the House that in the Napoleonic campaigns, of the dead only 3 per cent. died of wounds and 97 per cent. of disease. The nation, reflecting upon the extraordinary alteration that had taken place in the present campaign, would be really grateful to those who planned and organized the wonderful organization by which so many lives had been saved. There was no doubt that the master hand and the master mind in that organization was Sir Alfred Keogh. When he came back to the War Office to administer the medical services he brought judgement, skill, and prudence, for which all were most grateful; he had laboured with tirelessness, unceasingly and devotedly, for three and a half years to make the scheme as perfect as it was. Mr. Tennant said that he had had the honour of conferring with Sir Alfred Keogh during a time more pregnant perhaps with possibilities of failure or success than any other period during the war, and looked upon it not only as a privilege, but as a cogent and pleasing duty, to record his warm appreciation of Sir Alfred Keogh's services to the State, as well as his great admiration for him as a man.

The Place of Civilian Doctors in the Army.

On February 25th Mr. Walter Roch raised questions as to the use now being made of civilian doctors in the army. A very large proportion of the purely administrative posts in the army to-day were held by the old officers of the R.A.M.C. Of the civilian doctors with wide experience gained in the hospitals and the various branches of the profession some might well be appointed to such posts. Speaking of the distribution of distinctions, Mr. Roch said that while one of every two of the regular army medical officers had been decorated, only one in fifty of the fourteen thousand civilian doctors had been decorated. The sacrifices of these civilian doctors had been very great, and such as to alter their whole scheme of life; many who had given up substantial practices were now undergoing great hardships. He had received a letter from a friend in Salonica, a surgeon and a Territorial officer, who since the beginning of the war had remained a captain; he took his orders from his army medical officer as to what operations should or should not be performed although he had a large surgical experience which would have enabled him to suggest the kind of operation which should be adopted. Small use was made of some of the foremost operators in the profession. He had numerous letters showing that eminent civilian medical men had never performed any operation at all. It seemed ludicrous that the War Office should have at its disposal such men who were now almost wasting their time, for they were not carrying out those operations they were so eminently fit to perform. He wished that these civilian doctors and surgeons were formed into a staff for the base hospitals, giving them liberty to choose the men—none knew better than themselves—who were best qualified to carry out the work which falls to the civilian medical officer with the army. After mentioning some instances of specialists whose services had not been utilized, he said that he did not suggest that these things were general—though he was told they were—but they left the impression that the barrier which existed between the old officers of the Royal Army Medical Corps and the body of civilian medical officers was very real. The War Office should again consider the restoration of the old Advisory Medical Board, and make use of the civilian medical man with his great knowledge, bringing into the board, if necessary, representatives of the Canadians, the South Africans, the Australians, and perhaps the Indian Medical Service.

Mr. Macpherson, in his reply, said he hoped that Mr. Roch would now have felt assured that the distinctions which existed in the past between civilian doctors and doctors of the Royal Army Medical Corps were dying away. He understood that the reform which had come into existence made all distinctions a thing of the past. It was natural that more decorations had been given to men in the Royal Army Medical Corps than to civilian doctors, because the first went out at the very beginning of the war. Mr. Roch, interpolating, said he was taking comparisons for three years. Mr. Macpherson replied that he did not think that affected his argument much. Most of these civilian doctors were kept at home doing part-time work. They were carrying on their own practices and also doing civil work in hospital, and while the nation was very grateful to them for their part-time service, he could quite imagine it did not give them the opportunity for decoration which was given to the Royal Army Medical Corps, who were established officers, who had been bearing the brunt of work at the front and in the trenches.

The Advisory Medical Board, Mr. Macpherson said, had not, so far as he knew, met at any time during the war as a board, but the Director-General of the Army Medical Service had been in constant communication with either one or other of the members of that board, and had received invaluable advice from them. Mr. Macpherson said he should not like to see the able surgeons in administrative posts, for it was better that they should do their own specially skilled work. The best work for them was not administrative, but in the hospital dealing with the major operations and all the worst cases that arose.

Brothels in France.

During the debate references were made to the action of the British military authorities in France with regard to regulated brothels. Mr. Lees-Smith observed that in France there was a system of licensed regulated brothels, and there were many in towns largely occupied by British troops. Mr. Macpherson had said, in reply to various questions, that these places were under the control of the French civil authorities, and that the War Office had no jurisdiction over those authorities, but it had jurisdiction over the British soldier. Why did the British military authorities leave these places within bounds when the Americans in the towns they controlled had put them out of bounds? Similar inquiries were made by Mr. Roch. Mr. Macpherson, in his reply, said that there was no truth in the statement that the British military authorities had either requested the French military authorities to keep up these institutions or indeed connived at their maintenance. The view of the army was that the question was one entirely for the French civil authorities. While in this country there might be no hesitation in taking a certain action, yet in a country allied to us and on the most friendly terms with us, the army was in an extremely difficult position, and it could not ride rough-shod over arrangements which were accepted as part and parcel of the life of the country. It was true that certain estaminets and cafés had been put out of bounds for a specific purpose—namely, to prevent disorder. He promised to make further inquiries as to American arrangements. At the same time the alternative seemed to be, on the one hand, the danger of tolerating houses, and, on the other, that of soldiers meeting in the public streets with women who made their living in that way who were unregistered, and would not give the men associated with them the security a registered woman might give.

Venereal Disease.—On February 5th, at the request of the Under Secretary of State for War, Mr. Peto postponed a further question asking for particulars as to the number of men suffering from venereal disease who passed through army hospitals in 1917, the number on the sick list in France and in this country on any one day in the four quarters of 1917, and whether the Army Council intended to substitute for the War Office letter dated March 18th, 1916, instructions to medical officers to use every measure to prevent waste of man power in the army from this source. He also inquired whether it was true that there were between 40,000 and 50,000 men always in hospital for venereal disease. Mr. Macpherson has since informed Mr. Peto that the number of soldiers admitted to all hospitals in the United Kingdom in 1917 for all forms of venereal disease was 54,884. The number of soldiers in all hospitals in the United Kingdom suffering from venereal disease was:

On February 28th, 1917	9,058
On April 30th, 1917	8,045
On July 31st, 1917	7,302
On September 9th, 1917	8,674

Medical Men of Allied Nationalities.—In reply to a question by Sir William Collins, Mr. Macpherson stated that medical men of allied nationality, though holding qualifications in their own countries, were not eligible for substantive commissions in the Royal Army Medical Corps. They might, however, be employed by the War Office, as was the case with American surgeons.

Medical Department, Ministry of Pensions.—In reply to Mr. Alder, Mr. Hodges (the Minister of Pensions) said that Sir John Collie is a whole-time officer of the Ministry of Pensions.

THE WAR.

INJURIES OF THE VERTEBRAL VESSELS.

PROFESSOR HERMANN KÜTTNER has written an elaborate account of injuries of the vertebral vessels in the neck.[1] Of the fifty-one cases mentioned, forty-four are from earlier records, whilst seven had come under his own observation. Three patients survived operation, and two it is said made good recoveries.

Case 1.—The bullet had traversed the left side of the neck from the level of the cricoid cartilage to the second dorsal spinous process; both apertures had healed. A thrill, ceasing on compression of the carotid, could be felt in the lower part of the neck. The carotid artery was isolated with great difficulty in the dense cicatricial tissue, and found to be uninjured. Further tedious dissection of the transverse cervical, inferior thyroid, and vertebral arteries disclosed an aneurysm of the last named, communicating inferiorly with the vertebral vein. A ligature applied below the sac sensibly diminished the thrill, which, however, gradually became re-established. The upper part of the sac was tightly pressed against the vertebrae and the enlarged foramen of the sixth transverse process, and on incision it was found that its posterior wall was inseparably fused with the vertebrae, so that complete excision was impossible. The severe haemorrhage which followed was only partially arrested by ligature of the upper part of the sac and of the rigid collaterals opening on its hinder wall. Small fragments were therefore cut from the sterno-mastoid muscle and the cavity was plugged with these, and the bleeding stopped. The patient, it is said, made a good recovery.

Case 2.—The bullet had passed transversely through the hinder part of the neck in its upper third. The wounds healed completely, leaving the patient with a distressing murmur and a well-marked thrill near the left suboccipital region. The common carotid and its main branches were found to be normal, and on the assumption that a small arterio-venous aneurysm existed on some secondary branch of the external carotid, the vessel, together with the superior thyroid, lingual, and facial branches, was ligatured, and the thrill disappeared. Eleven months later the patient stated that the murmur had returned in its original intensity; and a thrill was then present in the suboccipital region, but not within the area of the occipital artery.

Case 3.—In this case haemorrhage from a wound to the right of the larynx, traced to a perforation of a large vein deep in the neck, occurred also into the right pleural cavity, and the patient died on the eleventh day.

Case 4.—Six months after receiving a bullet wound in the neck, which had healed, the patient suffered from a persistent murmur in the left half of the head, and there was a large pulsating tumour below the lobule of the left ear, in front of which the dilated and strongly pulsating carotid artery could be felt. This artery was not connected with the aneurysm. An incision was made into the sac large enough to permit of exploration with the finger, when respiration suddenly ceased, the pulse remaining good. Artificial respiration failed to restore the patient. It was found *post mortem* that the hinder wall of the aneurysm was formed by the third, fourth, and fifth cervical transverse processes and the deep muscles of the neck; superiorly the sac reached the level of the axis, and inferiorly to the fifth cervical vertebra. It communicated, through a small aperture, with the vertebral artery in the interval between the third and fourth transverse processes. From this point upwards the artery was closed by a firm thrombus, which was continued into the basilar and its branches and into the opposite vertebral artery for a short distance. It further extended into the circle of Willis and thence into the right internal carotid artery, which just above its origin had received a perforating wound, each aperture being connected with a small aneurysm. Both the sacs and the whole length of the internal carotid were filled with firm clot.

Case 5.—Eight days after a gunshot wound of the shoulder secondary haemorrhage suddenly occurred. The wound was traced up into the neck, disclosing an abscess and wound of the vertebral artery at the fourth and fifth transverse processes, which were comminuted. With considerable difficulty the artery was ligatured. The patient died a few hours later.

Case 6.—Secondary haemorrhage occurred from a suppurating grenade wound behind the left ear, received one week previously. The bleeding was traced to injury of the vertebral artery in its upper part, and excision of about 2 cm. of the arch of the atlas was necessary before the vessel could be ligatured. It was probable that the carotid artery also had been wounded. Death occurred one hour after the operation.

Case 7.—Haemorrhage following a gunshot wound of the left side of the neck was traced to the vertebral artery in its canal. Ligature at the site of injury being impossible the vessel was tied in the first part of its course. The patient made a good recovery.

[1] Bruns's *Kriegschirurg. Hefte*, 1917, lxv, p. 1.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

MAJOR W. AP S. J. GRAHAM, R.A.M.C.

Major Walter Ap Samuel James Graham, R.A.M.C., died on February 23rd, aged 54. He was the eldest son of the late General Sir James Graham, K.C.B., and was educated at St. Mary's Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1888. After acting as house-physician, house-surgeon, and resident obstetrical officer at St. Mary's, he entered the R.A.M.C. as surgeon on January 31st, 1891, and became major on January 31st, 1903. He served in the Nile campaign of 1898, receiving the British and Egyptian medals.

CAPTAIN P. H. DELAMERE, R.A.M.C.

Captain Percy Herbert Delamere, R.A.M.C., died in the Military Hospital, Milton, Portsmouth, on February 23rd. He was the eldest son of the late Captain P. H. Delamere, of the 21st Royal Scots Fusiliers, and took the diplomas of L.R.C.S.I. in 1882, and L.R.C.P.I. in 1883. He served for many years in the Colonial Medical Service in Demerara, British Guiana. He took a temporary commission as lieutenant in the R.A.M.C. on April 14th, 1915, and was promoted to captain after a year's service.

Wounded.

Lieutenant P. A. O'Brien, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Amesbury, Frederick Cholmondeley Dering, Major Indian Army (retired), son of the late Surgeon-Major J. W. R. Amesbury, I.M.S., died at Warwick on February 7th, aged 55. He was born on October 4th, 1862, got his first commission from Sandhurst in the King's Own Yorkshire Light Infantry on August 25th, 1883, transferred into the Indian army, and spent most of his service in the 10th Jats, attaining the rank of major on August 25th, 1901, and retiring on August 25th, 1907. He rejoined at the beginning of the war, and was posted to a service battalion of the West Yorkshire Regiment, and subsequently transferred to charge of the infantry records at Warwick. His eldest son, Second Lieutenant Hugh R. Amesbury, Bedford Regiment, was killed on November 20th, 1917, aged 27. He had previously served in the Canadian forces.

Harold, John Bevan, Lieutenant Royal Field Artillery, attached Royal Flying Corps, eldest son of the late Dr. John Harold, of Harley Street, died of wounds, aged 23, on February 16th. He was educated at Beaumont College, Old Windsor, and at University College, Oxford, where he was studying medicine, when he got a commission in the Special Reserve R.F.A., on August 13th, 1914. He had served for two years in France with the R.F.A., and a year ago transferred to the R.F.C., gaining his pilot's certificate last August. He returned to the front in December. While photographing over the enemy lines he was attacked by two German machines, but succeeded in bringing back his aeroplane, though severely wounded. His younger brother, Midshipman Geoffrey Harold, was lost in H.M.S. *Hogue* in 1914.

Hope, Humphry Bryan Thomasson, Lieutenant Northamptonshire Regiment and Royal Flying Corps, younger son of the late W. Hodgkin Hope, surgeon dentist, of Wellingborough, reported missing on April 26th, 1917, after an aërial fight with six German aeroplanes, now presumed killed on that date, aged 20. He was educated at Wellingborough School and at the Royal Dental and Middlesex Hospitals, London, when he got a commission in the Northants Regiment in November, 1915.

NOTES.

TREATMENT OF NERVE-STRAINED SOLDIERS.

MR. MACPHERSON, in stating that eight institutions for the care of nerve-strained soldiers were already organized, gave the names of the medical officers as under:

Lieut.-Colonel Mott, Maudsley Section, 4th London General Hospital, S.E.
Major Rows, Red Cross Military Hospital, Maghull.
Major Worth, Springfield War Hospital, Upper Tooting, S.W.
Lieut.-Colonel Fox, 4th Southern General Hospital, Plymouth.
Major Hurst, Royal Victoria Hospital, Netley.
Major Mackenzie, Glen Lomond War Hospital, Fife.
Captain Culpin, 1st Southern General Hospital, Monyhull Section, Birmingham.
Captain Clements, Bradford War Hospital, "Abram Peel" Section.

The Distinguished Service Cross has been conferred upon Surgeon Alexander Frederick Richmond Wollaston, M.B., M.A., R.N.

For conspicuous devotion to duty and for his unfailing care of the sick and wounded during military operations in East Africa. During the operations in the Rufigi River Delta he voluntarily attended to the casualties of the Rufigi River Transport Service in addition to those of his own unit.

The Distinguished Service Medal has been awarded to 1st Class Subassistant Surgeons Abdul Majid and Wahidyar Khan, and 2nd Class Subassistant Surgeon Chintaman Gopal Gogale, all of the I.S.M.D.

England and Wales.

PROPOSED TRANSFER OF FUNCTIONS OF POOR LAW AUTHORITIES.

AT the meeting of the London Panel Committee on February 26th a memorandum on the medical questions involved in the proposed transfer of functions of Poor Law authorities to public health authorities in London was discussed and, after some amendment, adopted. It recommended that whenever the transfer took place two distinct departments of the medical service should be established under the local authority, one dealing with public health questions, and the other with individual health questions, both preventive and curative, the two to work under a common central control. Every local authority should have two medical officers of equal status, one in charge of the sanitary, and the other of the clinical service. So far as the sanitary service was concerned, the best results would be obtained by increasing the number and maintaining the status and qualifications of the whole-time assistant medical officers of health. No general system of whole-time medical officers was likely to prove successful for the clinical service, and the Committee urged (as its only definite exception to the scheme for London as set out in the report of the Minister for Reconstruction) that medical service in the home should be given by a part-time service of general practitioners who should be remunerated by capitation grants. A part-time service of specialists and consultants should also be utilized to assist the general practitioners in connexion with domiciliary treatment. The memorandum also dealt with the question of administration, both of domiciliary and institutional services, and urged that the centralization of the administration of the "municipal hospitals" of the various boroughs in London was an essential feature of the scheme.

CENTRAL MIDWIVES BOARD.

At a penal session of the Board, held on February 20th, Sir Francis Champneys presiding, a number of charges of the usual kind were dealt with, and one midwife was struck off the roll. In one instance a midwife had inserted an advertisement offering "twilight sleep" treatment, and worded in an ambiguous manner. No mention was made that the treatment would be administered by a medical man. The Board agreed to censure the midwife and exact an undertaking that in any future advertisements there should be a clear statement that the administration of the treatment would be conducted by a doctor.

At the monthly meeting, on February 21st, the Secretary announced that the following bodies had respectively elected as their representatives on the Council:—*Royal College of Physicians:* Sir Francis Champneys, Bt., M.D. *The Privy Council:* The Lady Mabelle Egerton. *Society of Apothecaries:* Dr. A. H. W. Ayling. *Incorporated Midwives Institute:* Dr. J. S. Fairbairn. *Queen Victoria's Jubilee Institute for Nurses:* Miss Rosalind Paget. In reply to a communication from Dr. Janet Lane-Claypon, Dean of the Household and Social Science Department, King's College for Women, with regard to the scheme for constituting a central council for the physical welfare of women and children, it was decided to appoint the Chairman and Miss Paget as the Board's representatives on the Provisional Executive Committee. The M.O.H. for the county of Durham had forwarded a copy of the county council's scheme for providing trained midwives and medical assistance for them within the county. The Board expressed its approval of the scheme. Consequent on the establishment of a Central Midwives Board for Ireland, with power to prescribe rules for training and to hold examinations, the Board decided to give notice to all approved institutions, lecturers, and teachers in Ireland that its approval will be withdrawn from March 31st next. The Chairman moved, in pursuance of notice duly given—

> That having regard to the urgent necessity of securing the reciprocal treatment of midwives certified in other parts of His Majesty's dominions and of otherwise bringing into harmony the laws governing the practice of midwifery in the different parts of Great Britain, the Lord President of the Council be requested to introduce into Parliament as soon as may be a bill to amend the Midwives Act, 1902, by enlarging the scope of the powers of the Central Midwives Board on the general lines laid down by the Midwives (No. 2) Bill, 1910, and recently adopted in the Acts for Scotland and Ireland.

Scotland.

A DEPUTATION, representing the county council and district of Lanarkshire, had an interview on February 22nd with the Secretary for Scotland in order to express to him their views on the administration of public health services, with particular reference to matters being discussed in connexion with the proposal to establish a Ministry of Health.

INSANITY AND THE WAR.

In his report as physician-superintendent of the Glasgow Royal Infirmary, presented to the annual general meeting on February 21st, Dr. Oswald said that among soldiers exposed to its dangers the war might be producing some new forms of nervous and mental disease, but for these ample provision was being made. In those with a tendency to such illnesses the war might bring about a condition which otherwise would not manifest itself. The prosperity enjoyed by the working classes with the restrictions on alcoholic excess, taken along with the absorbing interest, to the exclusion of all else, of the war and its problems, made for a decrease, not an increase, of lunacy. The number of cases noted as due to alcohol was the smallest recorded for many years, while those due to syphilis showed an increase. Alluding to the establishment of the scholarship for research, Dr. Oswald said it was the first of its kind in Scotland, if not in Great Britain, and its institution marked a definite advance. Glasgow was now in the unique position among university cities in this country in possessing an endowed lectureship in mental disorders (St. Mungo's College) and an endowed scholarship for research into their causes.

Correspondence.

THE TREATMENT OF WOUNDS BY FLAVINE.

SIR,—I have read with interest the article by Colonel E. M. Pilcher and Lieut.-Colonel A. J. Hull which appeared in the BRITISH MEDICAL JOURNAL of February 9th.

The important practical question is not so much what is the absolute clinical value of flavine, but what is its *relative* value when compared with other substances which may be used under similar conditions. In other words, we must establish comparative standards. Some months ago I completed an investigation on these lines, and submitted a paper for publication which has not yet appeared in the press; but as I hope it may do so shortly, I do not wish to anticipate my results in detail, and my remarks must be condensed.

For over three years I have treated wounds extensively with gauze packs, so that I may claim a considerable experience in this method. In my investigation I employed flavine in the method from which its advocates claim for it the best results, that is, in the form of gauze packs wrung out in 1 in 1,000 solution. In control cases I used packs of plain sterile gauze, normal saline, boric lotion, weak biniodide solution, and cyanide gauze, none of which substances are at present fashionable in wound treatment, and I purposely avoided using hypochlorites or other agents for which special merit has been claimed. The general principles and details of treatment adopted in all cases were otherwise identical, and very careful observations were made. No substantial differences were observed between flavine and the other substances in regard to the control of sepsis and constitutional signs of toxaemia (any slight differences were on the whole adverse to flavine), but in regard to the processes of repair flavine proved definitely inferior to the others. That is to say, that I found flavine not only not an excellent wound dressing but *relatively* a bad one. All the phenomena which Colonel Pilcher and Lieut.-Colonel Hull have observed in their wards I am accustomed to see regularly follow adequate drainage and the use of gauze packs, irrespective of what substance may be in the latter.

In regard to the film, coagulum, or pellicle which forms in flavine cases, my experience was that it appeared (in varying amounts) in every case. My clinical observations led me to believe that it consisted partly of a fibrinous exudate, and partly of a superficial coagulation necrosis,

and this seems to be confirmed by histological reports which have since been published. If its appearance is due to the use of too strong a solution, as these authors suggest, then we must assume that the solution advocated by its chief supporters—that is, 1 in 1,000—is too strong. Its removal from the surface of the wound is by no means easy in every case, and that is what we would expect in view of its constitution.

It is very difficult to draw any deductions from the proportion of cases which reach the "difficult suture ideal" under any form of treatment, as the possibility of reaching it is dependent far more on the physical characteristics of the wound and the stage at which efficient surgical treatment is adopted, than upon what reagent is employed in the wound itself. Since the period of treatment in base hospitals in France has been increased, as it has been in the last twelve months, I have found that the number of cases reaching this country in which secondary suture is *mechanically* possible is much less than formerly, and that there is a corresponding increase in the number of cases mechanically suitable for skin-grafting—a procedure which is certainly not inferior to suture as an ideal standard. From the physical characters of the wound when first seen, I decide whether it is a suitable case for either of these measures. If so, I can almost invariably get it into a condition when, without the aid of any bacteriological examinations, I can say clinically that suture or skin-grafting may be safely attempted. I hesitate to state, without giving details, that my secondary sutures have been invariably successful, and that my skin grafts, by the special technique which I employ, show certainly over 95 per cent. of complete successes—the exact percentage I have not at present available—although I employ neither flavine nor hypochlorites at any stage of my preparatory treatment.—I am, etc.,

William Pearson, Major R.A.M.C.,
Surgical Specialist.

Chichester, Feb. 25th.

SANATORIUM TREATMENT OF THE TUBERCULOUS SOLDIER.

Sir,—Expert opinion of the recent discussion at the Medical Society of London seemed unanimous that the continued use of sanatorium treatment for other than incipient or early cases is useless from the economic or public point of view. The offer of sanatorium treatment, therefore, to tuberculous soldiers after their discharge from the army and after they are more or less damaged lives, is bound to give disappointing results. This, however, seems to be the scheme of the Ministry of Pensions, and the monetary provision for such men as will accept institutional treatment is generous. It would be a great saving of man power and of money if the army authorities undertook the early diagnosis and treatment of tubercle before the men put off their khaki.

Some time ago I came home from Egypt in charge of a convoy of forty-eight tuberculous soldiers returned from the Egyptian Expeditionary Force. All these men had been before medical boards in India, Palestine, or Egypt prior to embarkation. Forty-four were cases of pulmonary tuberculosis; most were in a comparatively advanced stage; both lungs were generally affected, and in some all five lobes were involved; eighteen showed signs of cavitation and 88 per cent. had tubercle bacilli in the sputum. The average length of time they had spent in military hospitals prior to embarkation was six months. In 74 per cent. of the cases the disease was considered by the medical boards to have been not caused but aggravated by active service, ordinary military service, or climate. If the findings of the medical boards, therefore, are correct, these men must have had active or quiescent tuberculous foci before being drafted overseas. The home localities of these forty-eight men embraced Scotland, Ireland, Wales, and seventeen different English counties.

The discharged tuberculous soldier, apart from his economic loss to the State and his own family, is bound to be a steadily increasing danger as a focus of infection to the community, until an effort is made to catch and treat the early and curable cases and segregate the advanced and infectious cases.

Judging from what one reads in the American medical journals, the problem of the tuberculous soldier is being tackled with great energy by the medical authorities of the U.S.A. army.—I am, etc.,

Temporary Commission, R.A.M.C.

ARMY MEDICAL RECORDS.

Sir,—Your article on army service records (February 16th) will not be received with enthusiasm by medical officers of hospitals in this country.

It is to be regretted that the "index card" does not make for simplification and does not reduce clerical work. It is, in fact, an addition of one army form and not a reduction of one. The medical case sheet remains, and will remain if "the Medical Research Committee views its disappearance with some apprehension."

The index card is badly conceived; its faults are obvious if compared with the "field medical card." In the latter it is recognized that the medical officers at the field ambulances, the casualty clearing stations, and the base hospitals are different individuals, and so they are each given a separate space. The index card, however, fails to recognize that when a patient enters a particular group of hospitals in this country he is similarly treated by different medical officers, almost invariably by at least two, and often many more. It is impossible to decide who is the particular medical officer to make the necessary entries. Your article states: "The card is taken to the ward and comes under the charge of the medical officer, whose duty it is to fill in the diagnosis, with notes, etc., . . . authenticated by his signature." If I may be permitted to continue the story, I should write, "the patient is later transferred to an auxiliary hospital, where a minor or major operation is performed, returns to the central hospital, and is discharged to furlough." According to your article the card has already been completed and authenticated. The example quoted is a very common occurrence; every medical officer can mention scores of more complicated cases.—I am, etc.,

Puzzled.

February 25th.

THE PAY OF SPECIAL RESERVE OFFICERS R.A.M.C.

Sir,—Many R.A.M.C. officers will welcome Dr. Spence's letter on the pay of Territorial R.A.M.C. officers, published in your issue of February 16th, p. 216.

Dr. Spence should have added that Special Reserve officers are suffering under the same injustice, and perhaps in a more aggravated form, as promotion in the Special Reserve is slower than in the Territorial Force. He did not point out that when wounded and in hospital Territorial and Special Reserve officers lose all their allowances while temporary commission officers retain their full pay. Needless to say the loss of allowances is a very serious matter to a married officer if he is in hospital for any length of time.—I am, etc.,

Hard Up.

February 21st.

PAYMENT OF MEDICAL OFFICERS OF AUXILIARY HOSPITALS.

Sir,—In the Supplement of February 16th you state that the Central Medical War Committee is pressing the authorities for a payment of a uniform sum of 10s. a day in the same form and manner as obtain in the Aldershot Command. You also admit the variation in the amount and method of remuneration in different areas. Now, no doubt you are aware, for instance, that the rate of remuneration in this area (Eastern Command) is 4d. per day per occupied bed, with the proviso that the medical officer shall not receive more than £1 per day. The medical officers live often some distance—it may be miles—from their hospitals, and have to pay for petrol and the increased wear and tear along roads that materially shorten the life of their cars.

To talk of making a flat rate of 10s. a day is manifestly unfair to many medical officers. Probably the varied methods and amounts of remuneration in different areas were originally fixed with the knowledge of the different conditions obtaining in different areas.

We in this area have been working for some time at the rate of 4d. per day per occupied bed, with a maximum of £1 per day, and find the amount none too much, considering the time, responsibility, and the expenses attached

to the work, and in spite of the fact that this is a comparatively easy area to work. May I add that for the above remuneration the medical officer has to visit the hospital at least once a day, Sundays included? To earn £1 per day he must have at least sixty beds occupied every day. If he has more occupied beds than this, he only receives the £1 per day notwithstanding. If the Central Medical War Committee intends to press for only 10s. a day it will be acting adversely to the interests of the medical officers in, at any rate, this area—possibly in others; and in some cases men who are running small hospitals will gain at the expense of those who are putting in a great deal of time at larger hospitals.—I am, etc.,

W. H. CHESTERS,
Honorary Secretary, Bromley Local Medical War Committee.

Bromley, Feb. 24th.

Obituary.

F. M. SANDWITH, C.M.G., M.D., F.R.C.P.,

LATE CONSULTING PHYSICIAN, EASTERN MEDITERRANEAN FORCE.

DR. F. M. SANDWITH died suddenly, on February 17th, at Bournemouth, where he had gone for the benefit of his health after serving for two years as consulting physician in Egypt to the Eastern Mediterranean Force with the temporary rank of colonel.

Fleming Mant Sandwith was born in 1853, the second son of Colonel J. W. F. Sandwith. He was educated at Charterhouse and St. Thomas's Hospital, and took the diploma of M.R.C.S. in 1876 and that of L.R.C.P.Lond. in the following year. In 1893 he graduated M.D.Durh., and became F.R.C.P. in 1900. He saw a great deal of service in various wars. He was an ambulance surgeon in the Turco-Serbian war of 1876, and in the Russo-Turkish campaign in 1877–8; he was present at the fighting at Shipka Pass, and served on Baker Pasha's staff during his retreat across the Rhodope Mountains. In 1883 he went to Egypt to combat a cholera epidemic, and acted as vice-director of the Public Health Department of the Egyptian Government until 1885. He was then appointed professor of medicine in the Egyptian Government Medical School, and physician to the Kasr-el-Ainy Hospital, Cairo. In 1900 he became senior physician to the Imperial Yeomanry Hospital at Pretoria, and served throughout the South African war. He was the author of *Medical Diseases of Egypt* and *Egypt as a Winter Resort*, and when he settled in London maintained his keen interest in tropical diseases. He was lecturer on tropical diseases at St. Thomas's Hospital, and was a lecturer also in the London School of Tropical Medicine, as well as senior physician to the Albert Dock Hospital. He held the Chair of Gresham Professor of Physic in the City of London. He was a member of many medical societies at home and abroad; he was president of the Section of Tropical Medicine at the annual meeting of the British Medical Association in London in 1910, having been vice-president at Leicester in 1905. He delivered the Lettsomian Lectures at the Medical Society of London on dysentery in 1914, and wrote many papers on the prevention and treatment of tropical diseases. In the earlier part of the war he was physician to King George's Hospital. In 1916 he received the C.M.G. in recognition of his services in Egypt. He married the daughter of Dr. Humphrey Sandwith, of Kars, who survives him, with two sons—one a lieutenant in the navy, the other still a schoolboy—and two daughters, the elder of whom is married to Squadron Commander Maude, R.N.A.S.

The above is a brief account of Dr. Sandwith's medical career, but we would add a few words about "the man" rather than "the doctor." For those who really knew him there was a charm about his personality which greatly endeared him to his friends. Very quiet, almost reserved in manner, with a half-cynical pose which was much more assumed than real and which was relieved by a most delightful sense of humour, he was one of the kindest of men, always ready to help, saying little or nothing about it, and never grudging trouble in doing it. He had a wonderful power of sympathy and of looking at things from the point of view of those who sought his advice—a power which greatly added to his usefulness in the world.

His health latterly had not been good, and some time ago he underwent a severe operation, from which, however, he made a good recovery. But he felt the strain of the last two years in Egypt, and the heat, which was more than usually intense, greatly taxed his strength. When he returned home about two months ago his friends could not fail to recognize that he was worn and jaded. He was still anxious to work, and his retirement from the army was a great disappointment to him; but he took it quietly with a smile, and in the true spirit of a soldier. He died gently in his sleep—a happy ending to a strenuous life.

DR. JAMES WATT BLACK, consulting obstetric physician to Charing Cross Hospital, died at Crockham Hill Place, Edenbridge, on February 22nd. Dr. Black was born in 1840. He was the son of Mr. James Black, J.P., of Knock, Banffshire. He received the greater part of his professional education in Edinburgh, but studied also in Paris, Vienna, and Berlin. He obtained the diplomas of L.R.C.P. and L.R.C.S.Edin. in 1862, and graduated M.D.Edin. in the same year, being awarded the gold medal for his thesis; he had previously graduated in Arts at King's College, Aberdeen. In 1869 he became M.R.C.P.Lond., and was elected a Fellow in 1881. During the first five years after graduation he acted as private assistant to Sir James Y. Simpson, whose obstetrical and gynaecological works he subsequently edited. In 1869 Dr. Watt Black was appointed obstetric physician and lecturer at Charing Cross Hospital. In later years he acted as examiner in midwifery to the Royal College of Physicians, London, and the University of Oxford. Dr. Watt Black took an active part for many years in the work of the Obstetrical Society of London. He was president in 1891 and 1892, and his chief contribution to the Society's *Transactions* was on "Puerperal fever and septic poisoning." He was vice-president of the Section of Obstetric Medicine at the annual meetings of the British Medical Association in 1878 at Bath, and in 1895 in London. Beyond the edition of Sir James Y. Simpson's collected works he published little. During his years of active practice he gained a high reputation as a skilful and conscientious practitioner, and his genuine kindliness won him many friends.

THE death occurred on January 28th, at the age of 73, of Dr. JAMES ROBINSON, of Ulverston, one of the oldest active practitioners in the North of England. Dr. Robinson was a native of Ulverston, and studied medicine at Anderson's College and the University of Glasgow. After obtaining the qualifications of L.R.C.P. and L.R.C.S.Edin., and the L.S.A., in 1866, he served as house-surgeon to the Glasgow Royal Infirmary and Lying-in Hospital, and to the Carlisle Infirmary. Returning to Ulverston, he held for many years the post of medical officer to the local workhouse, and was honorary surgeon to the cottage hospital from its foundation in the early seventies. He took a keen interest in all local affairs and institutions, especially in the Volunteer movement. He was one of the earliest members of the Ulverston detachment, and retired with the rank of honorary surgeon-major. Of his six surviving children one is in medical practice at Gateshead.

ON February 4th Dr. T. ARNOLD JOHNSTON died at his residence, Leicester, at the early age of 37 years. A native of Ulster, he was educated at Belfast and at Edinburgh University, where he had a brilliant career, gaining many scholastic distinctions. He graduated M.B., Ch.B.Edin. in 1907 and M.D. in 1910. After holding resident appointments at Edinburgh, Bradford, and Leicester, he started consulting practice in the last-named town, specializing in bacteriology. He was appointed on the honorary staff of the Royal Infirmary as pathologist, and later as assistant physician. In addition he was pathologist to the Borough Mental Hospital and to the 5th Northern General Hospital. Dr. Johnston fell ill immediately after his marriage in 1915, being the victim of an injection acquired in bacteriological work. After many months he apparently recovered and resumed work, but a chronic meningitis supervened, which eventually proved fatal. Intellectually gifted, he was cheerful and kindly, and very popular professionally and socially. His early death is deeply regretted by his colleagues in Leicester, and much sympathy is felt for his widow and for his mother.

A MEDICAL friend of the late Mr. W. H. Jalland, whose death was announced in the JOURNAL of February 16th, p. 217, sends a personal note in which he says that Mr. Jalland justly held the premier position as surgeon in York. He possessed a sound judgement; he took great pains; he kept himself well abreast of the times, and read the medical journals faithfully; he was loyal to the best traditions of the profession. In cases of difficulty his advice and support to the harassed practitioner were invaluable. In counsel he was always helpful, while his sound judgement was the main reason for his success; yet behind this was a conspicuous integrity of character which commanded respect. For nearly forty years the welfare of the York County Hospital was one of his chief interests. Many of the improvements were largely made at his suggestion—for example, the erection of the children's ward, the open-air balconies, and the incorporation of the Eye Institution. He freely gave of his ripe experience to many city institutions where his considered judgement was much valued, and besides his work for the British Medical Association he took an active interest in the York Medical Society, of which he was twice president. By his regular attendance and frequent contributions his influence upon the younger members was considerable. He never forgot the dignity of his calling and always upheld what is best and noblest in the profession. For years to come his tall commanding figure and his cheerful helpful personality will be greatly missed.

DEEP regret is felt in Guernsey at the recent death of Dr. JOHN AIKMAN, Staff Surgeon-Colonel to the Lieutenant-Governor of the island, principal medical officer to the Royal Guernsey Militia, and past president of the Guernsey and Alderney Division of the British Medical Association. Dr. Aikman was born in Edinburgh in 1850; his father was the late Rev. Dr. Logan Aikman. After studying medicine in the University of Glasgow he graduated M.B. and C.M. with honours in 1871, and proceeded M.D. three years later. Having held house appointments at the Glasgow Maternity Hospital and the Glasgow Royal Infirmary, he served for a short time as assistant medical officer to the Metropolitan Asylums Board; he then went to Guernsey, where he practised for more than forty years. For some time he was surgeon to St. Peter Port Hospital, and he was surgeon to the Victoria Cottage Hospital, Guernsey, at the time of his death. Dr. Aikman was devoted to his profession and to his patients, and was held in the highest regard throughout the island. While shunning public life he had a great capacity for friendship, with a sympathetic charm of character. Much of his leisure was devoted to literature, which was his principal recreation; his published essays on a variety of general topics were much appreciated by his large circle of friends. The funeral, which was of a semi-military character, was attended by the Lieut.-Governor and many representatives of the military and civil sections of the community.

Universities and Colleges.

UNIVERSITY OF LEEDS.

AT a private degree ceremony, held on February 19th, Miss E. E. Violet Glover was admitted to the degree of Doctor of Medicine. Miss Glover is the first woman to obtain the Doctorate of Medicine in the University of Leeds.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

SURGERY.—*D. A. Dyer, *†M. J. Panthaky, C. E. Rice, *† J. Remers.
MEDICINE.—*O. Halstead, †E. A. Leak, C. E. Rice, *T. T. Tiplady, *†J. L. Walker.
FORENSIC MEDICINE.—A. E. Collie, R. E. Jenkins, C. E. Rice, T. T. Tiplady.
MIDWIFERY.—I. De Wardt, M. Girgis, T. A. Jordan, G. L. Mitchell, C. E. Rice.

* Section I. † Section II.

The diploma of the society has been granted to Messrs. I. De Wardt, E. A. Leak, J. Remers, and C. E. Rice.

Medical News.

DR. D. REID CAMPBELL of Drybrook has been appointed to the Commission of the Peace for Gloucestershire.

THE Carmichael prize, value £100, of the Royal College of Surgeons in Ireland for the best essay on the state of the medical profession, has been awarded to Alderman J. C. McWalter of Dublin, Captain R.A.M.C.

DR. A. ASHKENNY, honorary secretary of the School Medical Service Group of the Society of Medical Officers of Health, having received a commission as temporary lieutenant R.A.M.C., his address is now V.D. Section, Connaught Hospital, Aldershot.

THE trustees of Columbia University have under consideration plans for the establishment of a large clinic for the benefit of patients who do not wish to be recipients of charity but cannot afford to pay the fees of a number of specialists.

A MEETING of the members of the Old Epsomian Club will be held at the office of Epsom College, 37, Soho Square, on Tuesday next at 4.30 p.m., when, in addition to ordinary business, the sum to be given to the Epsom College War Memorial Fund will be decided. As the list of addresses is believed to be erroneous notices will not be issued by post.

DR. E. NORDENSKIÖLD of Gothenburg, the famous explorer, was present at the annual meeting of the Danish Medico-Historical Society at Copenhagen on December 10th, 1917, when Dr. Carl Jul. Salomonsen was elected its president for the ensuing year, and Professor Vilh. Maar undertook to edit its bulletin. Professor H. Mygind read a paper on the hygiene of the private house at Pompeii.

IN a report presented to the London Education Committee on February 27th Dr. W. H. Hamer, school medical officer, called attention to the relation between overcrowding in air raid shelters and the increased spread of infectious diseases. During the autumn air raids rises in the incidence of certain infectious diseases, including measles and scarlet fever, corresponded with periods of special crowding.

DR. D. M. WILSON, honorary secretary, Cheadle and District, informs us that the Cheadle (Staffs) medical men holding appointments under the guardians of the poor and the rural district council applied for an increase in their salaries and emoluments to the extent of 25 per cent., plus 10 per cent. for travelling expenses, plus 5 per cent. for drugs. The guardians and district council refused the application, so that the medical men concerned decided to resign their offices, and their resignations have been accepted by the guardians and district council.

THE introduction of compulsory rationing and the discontinuance of the voluntary propaganda department has led the Food Controller to reorganize the food economy division of the Ministry hitherto conducted by Sir Arthur Yapp. It will now consist of four branches: Public services food consumption, National Kitchens, Public Catering, and an Educational Branch under the direction of Professor E. H. Starling, F.R.S. The co-ordination and control of the several departments will be exercised by a Food Survey Board, of which the directors of the several departments will be members, with Lieut.-Colonel A. G. Weigall, M.P., as chairman.

A SMALL pamphlet entitled *Weekly Meat Rations*, containing Taylor's tables for rapidly calculating the purchasing value of coupons from ½ to 24, has been issued by Messrs. Mathieson and Sons, 16, Copthall Avenue, E.C.2 (price 6d.). A general note on meat rations is followed by a set of tables showing the amount of money that may be spent on meat in each week if three coupons a head or any smaller number are used, and the weight of other meat foods which can be obtained with the fourth coupon, which cannot be used for buying butcher's meat. The pamphlet ought to be very useful to any housekeeper who will take the small pains necessary to understand it.

THE Health Department of Cincinnati has established a health centre in the city for the purpose of carrying out a programme which includes the prenatal care and education of expectant mothers; the examination of children under school age: school medical examination and follow-up work; the establishment of health leagues in schools; junior Red Cross work, including elementary hygiene, home care of the sick and first aid; better housing and improved sanitary conditions for the community; frequent inspection of bakeries, dairies, groceries, restaurants, barbers' shops. It is also proposed to establish a night clinic for working men should the need for such a service exist.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediocra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES AND ANSWERS.

RAT-BITE FEVER.

DR ALFRED C. COLES (York House, Poole Road, Bournemouth) says that in the course of an investigation on 100 rats in England he found nine harbouring the *Spirochaeta icterohaemorrhagiae* of infective jaundice, and one, the eighty-fourth rat from the country, contained the *Spirochaeta morsus muris*, which the Japanese observers have shown to be the cause of rat-bite fever. He has described his method in an illustrated paper shortly to appear in *Parasitology*. Dr. Coles desires the loan of a slide showing the Japanese spirochaete, and asks that any reader who meets with a case of rat-bite fever would send him an excised gland or a smear from an excised or punctured gland, and blood films from the seat of the rash or wound, both taken during the febrile attack.

FINGER CRACKS.

DR. F. S. D. HOGG (Rickmansworth) writes to suggest smearing the crack with a probe or pointed match dipped in pure carbolic acid. "I tried this as an experiment on myself some thirty years ago, and since then have used it with invariable good results on myself and some others. One application is usually sufficient. The carbolic should not be put on the skin surrounding the crack."

SYPHILIS AND STILLBIRTHS.

"SCOTUS" says that thirty-five years ago the finding *post mortem* of a red spot in the cartilage of the upper end of the femur in an infant was considered to be pathognomonic of syphilis, and asks whether this was observed by Professor Beattie in the series of stillborn infants examined by him (p. 232).

UNINHABITED FURNISHED HOUSES.

H. A. L. B. inquires whether an officer is compelled to pay (*a*) local rates, (*b*) income tax, and (*c*) inhabited house duty on a house "which has been closed for the past eighteen months, furniture remaining in the house."

*** If the amount of furniture is considerable, yes. The leading cases are, as regards local rates, The Queen *v.* St. Pancras Borough Council (2 Q.B.D. 583), and, as regards taxes, Smith *v.* Dauncy (20 T.L.R. 444). We may perhaps add that we have heard of, but cannot vouch for, cases in which rates and taxes have been passed by local authorities, either in whole or in part, where the furniture has simply been stored in one or two rooms instead of being left more or less *in situ*.

LETTERS, NOTES, ETC.

DR. R. W. LEFTWICH writes to say that Professor Best's conclusion that saccharin increases acidity is not new. It was noted in the sixth edition of his *Index of Symptoms*.

AN APPEAL.

WE have received the following appeal:

May we appeal to the generosity of your readers on behalf of the wife and daughters of the late Mr. J. Kite, M.R.C.S., of Welwyn? Before his death, which occurred at the end of last year at the age of 76, he had been in failing health, mentally and physically, for some years, and for two years had been unable to practise. A kind-hearted man, of generous and easy-going disposition, he was, like others of the medical profession, singularly unbusiness-like, and often omitted to keep any record of his professional visits and to send in accounts. His life was not insured, and his family find themselves seriously burdened and handicapped by debts amounting to about one hundred pounds. Were these paid off they could start fair and ensure a reasonable livelihood. Mr. Kite was a member of the British Medical Association, and we cannot but feel that many members would be willing to send a small contribution to help the family of a medical man who was universally esteemed and respected. Donations will be gratefully received and acknowledged by either of us—Arthur E. Giles, M.D., F.R.C.S., 10, Upper Wimpole Street, W., and Bridge Cottage, Welwyn; P. M. Wathen, M.A. (Rev.), The Rectory, Welwyn, Herts.

MALTHUSIANISM AND MORALITY.

MR. E. B. TURNER informs us, in reply to Dr. Binnie Dunlop's inquiry (February 23rd, p. 248), that his statement was founded on a large number of actual cases which had come to his own knowledge in the course of his practice, and also on definite statements from rescue workers, one of whom at the present time has several such cases under her observation.

VENEREAL DISEASES.

DR. E. H. SNELL (Coventry) writes: The statement furnished in the JOURNAL of February 16th by Mr. E. B. Turner appears to be well reasoned and cogent. Does it not seem to follow from the argument that the beneficent influences on society therein attributed to the existence of these diseases will disappear if these diseases can be successfully banished? And if so, that all steps taken to diminish the incidence of venereal disease tend also towards establishing a general condition of promiscuity and immorality? Do the continuance of properly organized national life and the sanctions of conduct really rest on such an insecure and rotten foundation?

DIET, STARCH, AND SUGAR.

DR. P. J. CAMMIDGE (London) writes: It may interest Dr. H. Campbell to know that the relation between an excess of sugar and diabetes has been very exhaustively investigated by Dr. Le Goff, of Paris, who read a paper on the subject at the Seventeenth International Congress of Medicine held in London in 1913. An article by Dr. Teizo Iwai on diabetes in Japan, in which the bearing of sugar and starchy foods on the etiology of the condition is thoroughly gone into, was translated by Dr. Le Goff and appeared in the *Archives de Médecine expérimentale et d'Anatomie pathologique* in 1916.

ON WRITING WITH THE LEFT HAND.

DR. RICHARD KERRY (Montreal) writes: Some time ago, following an accident which temporarily damaged my right wrist, I began to write with my left hand, and, with the view of making it useful for operative work, have continued to use it. I write with my left pretty much as with my right hand, though the writing, as you may see, is backhand. It should not be necessary to turn the paper at right angles to the ordinary position, and a little steady practice will develop a good deal of facility in using the hand.

THIRST AT SEA.

DR. T. F. J. BLACKER (Brighton) writes to express the opinion that the suggestion put forward under this head by two correspondents in the JOURNAL of February 16th, p. 220, is not practical. It could not, he thinks, be applied in the case of a boatload of men, women, and children adrift in mid-ocean. He raises also the question whether the water would not have to be raised to 37° C.

SPONTANEOUS HAEMORRHAGE INTO THE PERITONEAL CAVITY.

MR. W. PERCY BLUMER, F.R.C.S.Edin., late Honorary Surgeon to the Sunderland Royal Infirmary, writes: Dr. Hilliard's case (February 23rd, p. 231) recalled to my mind a case I operated on about twenty years ago in the North of England. Writing from memory the facts were that a middle-aged man, a foreman in a railway goods yard, while attending to his usual duties was suddenly seized with acute pain in the appendix area. He was sent home by a conveyance and I saw him very shortly afterwards. I diagnosed acute appendicitis and recommended immediate operation. I was assisted in the operation by one of my hospital colleagues, who confirmed my diagnosis. Immediately on opening the abdomen in the usual line there was a rapid outpouring of blood. There was no time for making any exploratory examination; we immediately plugged the cavity with plain gauze and partially closed the wound. We left the wound undisturbed for forty-eight hours, when, with fear and trembling, we removed the plug very carefully. We were prepared for another outburst, but no further haemorrhage occurred, and the patient made a rapid and excellent recovery. As far as I know he is still living. As to arterio-sclerosis I have no record, but this condition might help to solve an otherwise puzzling case.

HEMIPLEGIA FOLLOWING CEREBRO-SPINAL MENINGITIS.

DRS. C. J. COLEMAN (medical superintendent) and C. W. DIAS (resident medical officer), City Hospital, Lincoln, ask for information as to the pathology and prognosis of the following case, and advice as to any special treatment of the hemiplegia:

A man, aged 26, became ill with sore throat and vomiting on December 8th, 1917. On December 10th he was admitted to the City Hospital, Lincoln. A diagnosis of cerebro-spinal

meningitis was made. The temperature was 102°, retraction of the head, pain and stiffness of the neck, and Kernig's sign (well marked), were present, but no diplopia or squint. Lumbar puncture was performed, 30 c.cm. of slightly turbid fluid drawn off, and 20 c.cm. of antimeningococcus serum injected intrathecally by the gravitation method. The specific meningococcus was found in the fluid drawn off. On December 14th the temperature was still raised, but the symptoms were much improved; 30 c.cm. of turbid fluid were removed by lumbar puncture. The patient continued to improve until December 21st, when he suddenly became unconscious but not comatose; there was also incontinence of urine and faeces, and paralysis of the left side of the body, including the face. Lumbar puncture was performed, and 30 c.cm. of turbid fluid under pressure removed. On the following day he was conscious and slightly better. On December 23rd he was comatose, breathing stertorously, with mucus in the throat, and more marked paralysis on the left side. On January 8th steady improvement was noted, but after that date symptoms of anaesthesia of the arm and paraesthesia of the leg developed. Throughout the illness, up to the date of the second seizure, insomnia was a marked feature, and did not respond to chloralamide, paraldehyde, or morphine. Headache of the violent type, restlessness, and delirium were absent throughout the illness.

KAPOK WOOL AS A DRESSING FOR WOUNDS.

JACQUES SILHOL strongly recommends the use of kapok wool as a dressing for wounds, as it has many advantages over cotton-wool (*Compt. rend. de l'Acad. des Sci.*, 1918, clxvi, p. 52). Kapok, or silk cotton, is a fine short-stapled wool, very abundant in Java especially. Its weight is only one-fourth or one-fifth that of cotton-wool; and it is remarkable for its impermeability to water, elasticity, and suppleness. In the treatment of wounds Silhol uses it either raw or after previous exposure to air. In irrigated wounds it absorbs not only their secretions but also such liquids as Dakin's. In dry wounds, without any other intervention, it absorbs the secretions of the wound, the blood corpuscles, and the microbes. Any pus that may be formed is remarkably poor in microbes. Microscopical examination shows that the wound contains few microbes, and that the fibres of the kapok dressing are very rich in microbes. Silhol states that, as far as his results have gone, he prefers very often the simple application of a kapok dressing to even a very well carried out irrigation by Dakin's fluid. Not only does kapok wool form an excellent covering and protection for wounds, but it is also a better packing substance for wounds than cotton-wool.

HYDROPHOBIA FROM THE BITE OF A CAMEL.

IN the *Review of Current Periodicals* by the staff of the Research Department of the Severance Union Medical College, Seoul, Korea (vol. ii, No. 6), there is a report by T. Noguchi, of a case of hydrophobia from the bite of a camel, which is published in the *Taiwan Igakukai Zasshi*. The patient was a keeper in the Zoological Gardens of Daibuku, Formosa, who on October 28th, 1916, was bitten on the right ankle by a camel imported from America. The wound was painful, but healed in a couple of weeks. Some time afterwards the camel died of a disease diagnosed at the *post-mortem* examination as pneumonia. On January 9th, 1917, the man noticed pharyngeal spasms on trying to drink; the other characteristic symptoms of acute hydrophobia followed, and he died on January 12th. Negri bodies were found in the brain, and the other findings were unmistakable. There was nothing in the camel indicating or even suggesting rabies, but the bars of its cage were so spaced that it would have been possible for a rabid dog or other animal to enter.

VOLUNTEER TRAINING CORPS.

"LIEUTENANT AND M.O. VOLUNTEER BATTALION," after nearly three and and a half years of duty and attachment to a Volunteer battalion, finds himself in the same state of ignorance as our correspondent of last week. He has recently been gazetted lieutenant and M.O. (temporary), but has not learnt what the pay is, or whether it dates from the day of being gazetted or of mobilization. Paragraph 1, A.E.V. 4009 reads: The M.O. "performs such duties in connexion with his appointment as the C.O. may consider necessary." This notification our correspondent finds too vague and wide in scope. Our correspondent is informed that a R.A.M.C. officer must explain and teach how even the "first field dressing" is to be applied. At the same time, A.C.I. 1823 states that a M.O. may obtain a grant towards the expense of his outfit by attending at a R.A.M.C. dépôt and passing an examination. He asks how a single-handed, overworked general practitioner in the country is to do this. His expenses during the last three years have included the purchase of two uniforms and a rifle, expenditure on petrol in taking men to drills, and the examination of recruits at places many miles from his house at a fee of 1s. a head. There is no allowance for petrol or wear and tear of car. He calculates that, with his subscription to the V.T.C., the cost to him has been well over £50. At one time he gave first aid and ambulance lectures free, but the numbers attending dwindled and the lectures had to be abandoned. There was no authority to enforce discipline, though the contingent was no longer voluntary except in name.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE following subscriptions to the Fund have been received during the week ending February 25th:

	£	s.	d.
Dr. Lewis McMillan ...	1	1	0
Mr. F. W. Gamble ...	2	2	0
Dr. E. Hay	1	1	0
Captain W. Jenkins Oliver, R.A.M.C. ...	5	5	0
Dr. R. Evershed	1	1	0
Dr. Cautley	5	5	0
Dr. J. H. Ormond... ...	1	1	0
Dr. Black	1	1	0
Dr. C. B. Ker	1	1	0
Mr. A. Chapman	0	10	0
Dr. Frederick S. Palmer	2	2	0
Mr. W. H. Quarrell ...	1	0	0
Mr. R. A. Scott	1	0	0
Dr. W. B. Drummond ...	1	1	0
Dr. Chas. Slater	2	2	0
Dr. Robert Harris ...	1	1	0
Dr. James Hudson ...	2	2	0
Dr. S. Hamilton	1	1	0
Dr. E. H. Young	2	2	0

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

TREATMENT OF WHOOPING-COUGH.

DR. ARTHUR J. MATHISON (Hornsey, N.) writes to recommend the treatment of whooping-cough by a mixture of ammonium bromide and thymol, thus combining an antispasmodic with an efficient internal antiseptic. "I used to add phenazone, and if I include the cases thus treated, I have a very large number indeed; but recently I have omitted it. I find that ammonium bromide and glycerin thymol co. (*B.P.C.*) with suitable flavouring—very much needed—form a mixture leaving little to be desired. Given early in the case, the 'whoop' may never occur, or be quite infrequent, while probably all cases are considerably modified by its exhibition. A suitable prescription for a child of 6 would be: Amm. bromid. gr.xl; glyc. thym. co. (*B.P.C.*) ʒiv; ext. glycyrrh. liq. ʒiv; aq. ad ʒvj. One tablespoonful three times a day."

THE CASE OF DR. J. HENDERSON BELL.

ON July 14th we briefly reported that Dr. John Henderson Bell of Chelsea had been convicted on two charges of wilfully attempting to produce a disease in two men belonging to His Majesty's Forces, and sentenced to six months' hard labour for each of the two offences, the sentences to run concurrently. Leave of appeal was granted, and the appeal was heard on November 27th. The defendant, who had throughout strenuously protested his innocence, called witnesses to prove his past high character and qualifications. The conviction was, however, upheld, but the imprisonment with hard labour was reduced to imprisonment in the second division.

We have received a letter from the Rev. A. G. Pentreath, D.D., Rector of Adderley, Market Drayton, and formerly senior chaplain to the forces at Malta, stating that he himself, and Dr. Bell's other friends as well as his patients, are convinced of his innocence, and consider him the victim of a miscarriage of justice. He appeals to the medical men in the United Kingdom to take an interest in the case, and states (1) Dr. Bell has always borne an unblemished and irreproachable character, and has been universally respected. (2) He has practised as a medical man for seventeen years; for two years he was resident at the Edinburgh Royal Infirmary; for nine months house-physician to the Brompton Hospital; and for three years assistant medical officer at Hounslow Hospital; and he had been successful in practice at Chelsea. (3) Some of the leading medical authorities in London have individually examined the facts from a medical point of view, and are unanimous in regarding Dr. Bell's behaviour in the supposed criminal action as perfectly usual and proper.

Dr. Pentreath offers to send a précis of the case to any medical man who will send a stamped addressed envelope to him at Adderley Rectory, Market Drayton. We hope that many medical men will interest themselves in the matter and obtain the précis, for a perusal of the statement submitted to us appears to show that the evidence upon which Dr. Bell was convicted was lacking in cogency.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.